Practically invisible since the Cold War, North American Aerospace Defense Command is now a daily presence over American cities.

The Return of NORAD

By Adam J. Hebert

In the Cold War years, North American Aerospace Defense Command was known far and wide for standing watch against nuclear attack. Hollywood popularized a vivid image of NORAD operators, tense and forever on alert, peering into their radar screens for signs of Soviet bombers or missiles flying over the pole.

Then the Cold War ended. In the 1990s, NORAD's work went on, but it became virtually forgotten by the public.

The invisibility ended Sept. 11, as the terrorist strikes against New York and Washington, D.C., suddenly thrust NORAD back into the spotlight with a major new mission—defense of sovereign US air space from internal threats. Now, this bilateral US–Canadian command is at the center of Combat Air Patrol missions over US cities.

F-15 and F-16 fighters chopped to NORAD have carried out intensive patrolling operations since the attacks. E-3 Airborne Warning and Control System aircraft—from USAF and NATO—have been flying around the clock, ready to direct action against hostile aircraft. Large numbers of KC-10 and KC-135 aerial tankers have been engaged.

The mission in the first three months of the operation—code-named Noble Eagle—generated some 10,000 USAF sorties.

The September attacks and their aftermath made it only too clear that aerospace control constitutes a vitally important piece of US security. These events established—publicly, visibly—that the Commander in Chief of NORAD, USAF Gen. Ralph E. Eberhart, is a warfighting commander.

On Sept. 11 Eberhart assumed direction of the first-ever Combat Air Patrols flown over US cities. The CINC, said a NORAD spokesman, is "directing the actions of all fighter aircraft performing Combat Air Patrols" over New York, Washington, and many other cities.

Down to Seven Bases

Like every government organization, NORAD was caught off guard on Sept. 11. The monitoring of threats went on as usual that day but NORAD operators were looking outward from US borders, seeking incoming danger. NORAD did not anticipate at-

NORAD directs CAPs that are now flying over several US cities. Here, North Dakota ANG F-16s and an F-15 from Langley AFB, Va., fly over the Washington, D.C., area.

USAF photo by SSgt. Greg L. Davis


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tacks in which civil airliners would be hijacked from domestic airports and turned into weapons against US targets.

At the time of the attacks, only seven locations—around the perimeter of the United States—were engaged in the air defense mission. Each was assigned a pair of Air National Guard fighter aircraft ready to scramble if US airspace were threatened.

These alert locations had F-15 or F-16 fighters on the runways, fueled, and ready to take off in fewer than 15 minutes.

It was, however, a greatly diminished presence, said Maj. Gen. Paul A. Weaver Jr., now retired, who was at the time the director of the Air National Guard. He said that, during the Cold War, the air defense force structure was much more robust. Fighters sat fueled and ready to take off, if directed by NORAD, at "well over 100 alert sites."

Weaver said the number of sites was reduced because it was widely believed the threat to the United States had essentially disappeared. Some questioned the need to maintain even the seven alert bases. "Based upon the threat, seven sites was [considered] adequate for the outward threat," he said. "Never did we believe the threat would come from within."

The seven air bases with aircraft on permanent alert Sept. 11 were arranged around the Pacific, Gulf, and Atlantic coastlines. This perimeter arrangement was a reflection of pre-attack thinking that was focused on external threats.

When word came on Sept. 11 that airliners had been hijacked, air defense fighters scrambled at Otis ANGB, Mass., and Langley AFB, Va., and went off to intercept the airliners. However, according to a NORAD fact sheet released shortly after the attacks, the fighters simply had no chance to intercept the four hijacked airliners.

The first notification that something was wrong came in at 8:40 a.m., and at 8:46 a.m. a fighter scramble order was sent to Otis. Only seconds after the scramble order, American Airlines Flight 11 out of Boston slammed into the World Trade Center's north tower. The two Otis F-15s did not take to the air until six minutes later.

Next, at 9:02 a.m., United Airlines Flight 175 from Boston crashed into the WTC south tower. At the time of this impact the Otis–based F-15s were still 71 miles outside of New York City, meaning they were about eight minutes away.

Shortly thereafter, at 9:24 a.m., NORAD got reports of additional hijackings and immediately scrambled two F-16s of the 119th Fighter Wing, a North Dakota ANG unit that keeps a permanent detachment at Langley. The Langley fighters took off at 9:30 a.m., but once again the Air Force lacked enough time to avert catastrophe. American Flight 77 out of Dulles Airport hit the Pentagon at 9:37 a.m. The Langley fighters were still 12 minutes and 105 miles away from Washington, D.C.

The fighters outside Washington and New York continued to patrol because there was word of another hijacking. United Flight 93 out of Newark, N.J., had turned toward Washington, but it crashed in Pennsylvania countryside at around 10:03 a.m, after a revolt by passengers who had figured out what was happening.

F-16s patrolling the Washington area were in a position to have intercepted this airliner. During these tense moments, the fighter pilots had permission to shoot down hijacked airliners if they were to threaten more targets. The authority came directly from President Bush.

The damage was done, but within hours of the hijackings, almost every civilian airliner over the United States had been grounded or rerouted to Canada, and Combat Air Patrols had been launched under NORAD direction to cover more than 30 locations. The CAP fighters protected the airspace "over every major center" on Sept. 11, said a senior NORAD officer.

Constant Vigilance

Since the events of Sept. 11, NORAD and USAF have beefed up the domestic combat patrols considerably. The number of alert bases has been increased from seven to 26, with four fighters at each site ready to go, said senior Air Force officers.

The CAP missions continue unabated. In addition to round-the-clock operations over New York and Washington, NORAD directs missions over other undisclosed urban centers selected in response to threats or on a random basis, said Lt. Gen. Ken R. Pennie, NORAD deputy CINC and the top Canadian official at NORAD.

A senior Air Force official said that, on any given day, the CAPs are in place over eight to 12 American cities.

These patrols will be continued in part to create uncertainty in the minds of potential terrorists. Pennie noted that NORAD also has more on-alert aircraft "by a factor of seven" than was the case Sept. 11.

A senior Air Force official said that, since Sept. 11, the service has made available 120 to 130 fighters,

USAF photo by SSgt. Greg L. Davis

Before Sept. 11, air defense focused on external threats. Now, NORAD–controlled aircraft, like these North Dakota ANG F-16s, keep constant watch internally, as well.

from 50 to 75 KC-10 and KC-135 tankers, and 10 E-3 AWACS, backed up by five NATO–owned AWACS sent to the US for temporary duty. The work has required 11,000 airmen to maintain more than 250 aircraft.

"At this point, we don't know" how long the CAP missions will continue, Pennie added, but the number of flights will probably decline over time as NORAD gets "more comfortable" with what it takes to maintain domestic air sovereignty.

Without question, however, the increase in flight activity has been dramatic, according to Eberhart's recent testimony to the Senate Armed Services Committee.

For example, in the year 2000, during the period Sept. 10 through Oct. 10, NORAD scrambled fighters a total of seven times (counting exercises). A year later, during the same Sept. 10 through Oct. 10 period, fighters were scrambled 41 times. In addition, officers diverted 48 Combat Air Patrols to tracks of interest, for a total of 89 events.

USAF photos by TSgt. Shaun Withers

CAP responsibility now extends to activities such as protecting a space shuttle launch, like the Florida ANG F-15 above with* Endeavor *in December. Here, an ANG F-15 refuels from a KC-135 over Florida.

All signs are that the scramble activity, while it may have tapered off somewhat, still runs at a high level.

Moreover, all units supporting Noble Eagle experienced a significant increase in NORAD–related sorties. Normally, units fly four to six sorties a month in support of the NORAD air defense mission. Since Sept. 11, however, several units such as the one at Otis flew more than 100 sorties per month.

Flying such a large number of sorties is an expensive business, said Pennie, who acknowledged that over time portions of the CAP mission will likely transition to fighters on "ground alert posture."

Picturing US Airspace

In addition, the US military is moving out to make significant changes in the way it acquires information about domestic air activity.

On Sept. 11, NORAD was unaware that a problem existed until the Federal Aviation Administration, the civilian agency in charge of US air traffic, notified the command. For some time, the FAA had been the lead agency for handling events of "air piracy." NORAD and the FAA had a cooperative arrangement that left control of domestic airspace in the hands of the FAA. Domestic airliners were considered "friendly by origin," said a NORAD spokesman.

In the wake of the attacks, NORAD has been closely monitoring all potential threats both inside and outside of US borders. Each day military detection and tracking systems designed to watch for bombers and missiles monitor 7,000 aircraft approaching the United States.

NORAD officials said the command does not have constant access to the "interior" radar displays used by the FAA and said this is a potential area of improvement. In fact, the command is now working to achieve a more comprehensive level of vigilance that will not require reliance on the FAA for help monitoring domestic air traffic, Pennie said.

"We need better connectivity" to guarantee access to domestic air traffic information generated by the FAA and its Canadian counterpart, he said.

Civilian air traffic radars are separate from NORAD's "fence" of radars focused on external threats, Pennie explained. The rationale for this arrangement was that not only were Sept. 11–style hijackings not expected, but the Cold War mind-set was that "once a bomber got that far [past the NORAD fence] ... things were pretty bad."

Unfortunately, Pennie reported,

USAF photo by Lt. Col. William Ramsay

Massachusetts ANG F-15s fly over the Cape Cod area, returning from a CAP mission for Operation Noble Eagle, which amassed some 10,000 USAF sorties alone in its first three months.

NORAD "simply can't connect all the radars" and create an all-inclusive radar monitoring facility. The technology simply does not exist to do this, and building an all-new radar system from the ground up would be time consuming and prohibitively expensive.

For the time being, "working closely with the air traffic authorities" in the United States and Canada "is the way to go," Pennie said.

The ANG's 1st Air Force, based at Tyndall AFB, Fla., is NORAD's main CONUS operating unit. NORAD has deployed air battle managers to FAA sectors to improve liaison and flow of information. Moreover, NORAD has opened a direct telephone line to the FAA to make it possible to hold a swift teleconference among aviation officials.

Lt. Col. Steve Ruggles, chief of NORAD's Aerospace Warning Operations Branch on Sept. 11, said the command is only too aware of its radar limitations.

"We have an urgent need to replace that system with a new more advanced system that will allow us to display more radars so that we can develop our own interior air picture," Ruggles, now retired, told *Inside the Air Force*.

For the time being, initial warnings of possible threats will come from the FAA. But unlike the pre–Sept. 11 situation when "the last thing [the FAA] would do is call NORAD," the agencies now operate under a new realization of the terrorist threat and have closer relations, Pennie said.

Additionally, Eberhart told the Senate, NORAD has positioned around the United States a number of portable air control radars to more rapidly respond to FAA requests for assistance. NORAD moved about a dozen of these units around the country.

Pulling the Trigger

The terror attacks have also brought a major change in the rules of engagement for using force against airborne threats. Civilian airliners with large numbers of American citizens are no longer exempt from military attack.

In a Sept. 16 interview with NBC's "Meet the Press," Vice President Dick Cheney said unequivocally that fighters eventually were authorized to shoot down airliners as a last resort. Cheney said he had recommended this course of action to President Bush, who had accepted the advice.

It is widely believed the last hijacked airliner, and the only one that could have been intercepted by NORAD–controlled fighters, was being flown back to Washington, with the intent to strike the White House or Capitol.

"It doesn't do any good to put up a Combat Air Patrol if you don't give them instructions to act," explained Cheney. "If the plane would not divert, if they wouldn't pay any attention to instructions to move away from the city, as a last resort our pilots were authorized to take them out."

NORAD has procedures in place to deal with intercepting, identifying, and classifying unknown aircraft and it is prepared to engage aircraft that pose a threat to the United States, even if they are airliners within US airspace.

The fighters under NORAD's command "will employ a graduated response if any aircraft poses a threat to the civil population or our national assets," a spokesman explained. He added, "Shooting an aircraft [a civilian airliner] down is not out of the question."

In a recent interview with the *New York Times*, Eberhart pointed out that three senior officers might in some future crisis have the authority to order the shootdown of an airliner.

He said "If there's time, we'd go all the way to the President" for approval to shoot down an airliner. "Otherwise, the standing orders have been pushed down."

In the continental US, the task belongs to Maj. Gen. Larry K. Arnold, commander of 1st Air Force. In Alaska, the man on the spot would be Lt. Gen. Norton A. Schwartz, a three-star officer at Elmendorf Air Force Base there. In Hawaii, Adm. Dennis C. Blair, head of Pacific Command, would have the authority.

Anyone forced to make that decision would indeed face a moment of truth. "You have to ask yourself," said Cheney, " 'If we had had a Combat Air Patrol up over New York and we'd had the opportunity to take out the two aircraft that hit the World Trade Center, would we have been justified in doing that?' I think absolutely we would have."

Weaver said: "This [potential for firing on a civilian airliner] is new territory for all of us. Aircrew members are going through a lot of soul-searching." ■

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