

STATEMENT OF THE HONORABLE DONALD D. ENGEN, FEDERAL AVIATION ADMINISTRATOR, BEFORE THE SENATE COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION, CONCERNING WEATHER RADAR, AIR TRAFFIC CONTROL, AND INSPECTOR STAFFING. OCTOBER 1, 1985.

Madam Chairman and Members of the Subcommittee:

I appreciate having the opportunity to appear before you today to describe the status of the FAA's efforts in several key areas of express interest to the Subcommittee. I believe the way the Subcommittee has structured today's hearings so that key safety experts of the FAA and other segments of the aviation industry will appear together on panels provides an opportunity for a very meaningful dialogue on a variety of topical issues.

I am pleased to make available for today's panels Mr. Anthony Broderick, Associate Administrator for Aviation Standards, to sit on the panel dealing with aviation safety inspectors; Mr. Neal Blake, Deputy Associate Administrator for Engineering, to sit on the panel on weather radar; and Mr. Jack Ryan, Director of Air Traffic Operations, to sit on the panel covering air traffic issues.

Before discussing the specific topics of interest to the Subcommittee, I would like to briefly give my assessment of the overall status of our national air transportation system. In a word, I believe that our system is healthy. Certainly there is

more that remains to be done to make it better--and we are all working to do that--but the fact is that our air transportation system is delivering what we expect of it: safe and efficient travel. When passengers board a U.S. air carrier, they are assured a level of protection afforded nowhere else in the world and by no other means of transportation. They are paying for a comfortable and amazingly efficient way of moving vast distances in the span of mere hours--and by a transportation mode that has offered one million passengers a day the opportunity to select any of roughly 14,000 scheduled flights in the United States in which 99.999 percent of the flights will reach their destinations without incident.

I recognize and am highly sensitive to the concerns of the public--and, indeed, am concerned myself-- about the recent accidents that have occurred both within and outside the United States. Let me assure you that we, in conjunction with the National Transportation Safety Board, are doing all that we can to see what problems occur and what measures can be taken to address these problems. Although more remains to be determined during the course of these accident investigations, I do think it is important to note that what we have seen this year indicates that there is not a common element shared in these tragic accidents. Therefore, their occurrence does not reflect a serious shortcoming or failure in the air transportation

system itself which threatens the overall safety of that system. I believe that is a key point to note. Also, it should be noted that, despite the recent tragedies, the overall trend of accident and fatality rates has been a positive one which over the past decade has continued downward. And this is despite substantial growth in air travel.

So, in short, I believe that we can continue to have great confidence in the American air transportation system. I say that with some pride in the accomplishments that the FAA has been able to make toward the outstanding record of that system. At the same time, though, I must recognize the commitment and contributions of all segments of the aviation community toward constantly bettering the system. We must remember that the responsibility for assuring that the system operates safely does not rest solely with the FAA and the Congress. It is a shared responsibility. We can encourage safety in the air transportation industry; we can even prod operators toward following appropriate practices or punish them if they don't. But in the end, the overall record of our system will reflect the general commitment to safety of those who operate within that system. After all, the FAA, despite its best intentions and despite the best intentions of the Congress, will never have the resources to inspect every flight or to monitor every maintenance operation on an aircraft, and I don't want to imply that we should. Instead, a system of rules and procedures must

be in place that, when followed, will afford a high degree of safety; and the FAA must work with the operators not only to see that the proper system is put in place but through surveillance and spot checking seek to ensure that it is adhered to. This is the appropriate balance that has been achieved within the aviation community over time. It has worked well and, in my view, it continues to work well.

Let me take a few moments now to briefly touch on those issues of interest to the Subcommittee.

Weather Radar

The FAA has had an active program on wind shear since the early 1970's, when wind shear was identified as a cause of some aircraft accidents. Over time, we have come to learn much more about the wind shear phenomenon, its impacts, and how to detect it. As in most aviation issues, there are two key components to addressing the threat of wind shear: the human element and the hardware. In terms of the human element, we plan to award a contract to a consortium of aircraft manufacturers, airlines, and scientists for the development of an improved pilot training program on wind shear. This program will be conducted over a two year period and will provide a training program suitable for all categories of pilots. We expect that it will form the basis

for better recognition of the wind shear phenomenon and help standardize the techniques for avoiding wind shear or minimizing its impact when encountering it.

On the "hardware" side, we have made substantial progress, in conjunction with the National Oceanic and Atmospheric Administration (NOAA), and the U.S. Air Force, in what is called the NEXRAD program. This Next Generation Weather Radar was initially conceived to be a program which would meet the en route weather needs of the FAA, NOAA, and the Air Force as well as FAA's terminal weather needs. As we learned more about microbursts with resultant wind shear, it became clear to us that NEXRAD radar could not meet the FAA's weather needs in the terminal area where the threat of wind shear can be the most critical to arriving and departing aircraft. Therefore, FAA initiated development activities to establish the feasibility of using modified NEXRAD capabilities to meet the higher update rate and wind shear detection requirements of the terminal area, which constitutes the terminal Doppler element of our weather program.

System testing of the en route NEXRAD will start at the contractors' facilities in December 1985. Independent operational test and evaluation will be conducted through July 1986 and selection of the production contractor is scheduled to occur in mid-summer. Contract award is currently scheduled for November 1986.

The FAA has established a test bed for terminal Doppler weather radar at Memphis, Tennessee, to take data on microbursts in the humid southeast portion of the United States as recommended by the National Academy of Sciences. The test bed is also being used to determine the best siting and scanning strategies for terminal Doppler weather radar. It is currently planned to move the test bed to Huntsville, Alabama, next year to participate in the National Science Foundation project MIST (for Microburst Severe Thunderstorm). During 1986, the FAA, assisted by Lincoln Laboratory, National Center for Atmospheric Research, and others, will develop and test automatic detection and warning algorithms for wind shear. In 1987, the FAA plans to conduct an operational test using the automatic detection and warning system. The site for the test has not been selected; however, Denver is one candidate being considered.

Development of alternative designs for a terminal Doppler weather radar is being initiated. Terminal Doppler radar would be a major system acquisition and we are currently looking at alternative ways in which to make the appropriate acquisition.

We are also continuing efforts on an airborne Doppler weather radar. The advantage of having a suitable airborne device is, of course, that an equipped aircraft would receive wind shear warnings at all airports at which it operates. Considerable

technical problems which must be overcome include the ability to provide the needed sensitivities, clutter rejection, and automatic signal processing on an aircraft, where antenna size is limited and aircraft speed and antenna look angles required for low level wind shear detection accentuate the clutter removal task. Current airborne radar systems simply do not possess the needed capabilities. NASA Langley has proposed to initiate a research program to determine the level of improvement that could be achieved in airborne Doppler weather radar technology. The FAA is supporting this activity and we will keep looking, but there is no assurance that an airborne unit capable of detecting wet and dry microbursts can be achieved.

In short, we are making solid progress toward reducing the safety threat caused by wind shear through our programs which address both improved pilot training and the development of improved ground and airborne detection systems.

Air Traffic Control System

As the Subcommittee is aware, we have made substantial strides in rebuilding the air traffic control system. We attained our longstanding controller workforce goal of 14,000 for this Fiscal Year. In terms of our goals for operational controllers, we achieved 100 percent of the required operational controllers at

terminals and 82 percent in the en route option. Because of the lower numbers of operational controllers in the en route environment, we have incurred significant overtime usage at some air traffic control centers, but have programs in place now to improve that situation. Moreover, to better utilize our resources, we plan a major rebalancing in 1986 between the en route and tower controller options, and between facilities within each option. Through this transfer program, we intend to increase the percentage of full performance controllers in the center option.

Systemwide, we are operating at about 107 to 109 percent of pre-strike traffic levels. In fact, 5 terminals, 3 TRACONS, and 5 centers have posted an all-time record high for daily operations. We have also been able to handle this traffic without the high delays we encountered one year ago. To illustrate this point, I would like to compare our delay figures for January - August 1985 with the same months one year ago. This year, from January through August, en route operations increased by about 500,000 over the same eight months one year ago, which is about a 3 percent increase in traffic. We experienced about the same increase for the 22 pacing airports. Notwithstanding this increase in traffic, the number of delays over the 8-month period declined by 64,000 aircraft or 24 percent. For the summer months of June, July, and August this year, slightly more than 88,000 aircraft experienced a delay of

15 minutes or more compared to 124,000 in 1984. That is nearly a 41 percent improvement.

Also on the positive side, total operational errors are down this year over last year. They are down significantly in the en route environment, and up slightly in the terminals. During the months of January through August, we experienced 1,014 operational errors this year compared to 1,326 last year for the same period, which is about a 24 percent improvement over last year.

In terms of near midair collision (NMAC) reports, there has been an increase this year. But I should add that we have changed significantly our report handling procedures and emphasis, meaning that data for 1985 and subsequent years cannot be compared with 1984 and prior years. Preliminary data show that the number of NMAC reports filed through August have increased when compared with the same period last year. This increase has essentially involved general aviation and military aircraft, with the number of incidents involving air carriers remaining roughly the same as last year. A total of 530 preliminary reports were received for the first 8 months of this year compared to 392 reported last year during this same timeframe. I attribute much of the increase to renewed emphasis on pilot reporting and on improvements we have made in the FAA in our

reporting system to obtain a more complete and accurate picture of what is occurring in the National Airspace System. I would add that we are continuing our efforts to reduce the number of these incidents through an education program called "Back to Basics," which is being prepared for presentation to pilot groups and controllers throughout the country.

I understand the Subcommittee is also interested in knowing of our efforts to reduce runway incursions. This is an area which I have stressed within the FAA, and where I expect to see improvements in the future based upon a number of positive steps we are taking. I have personally conducted two TELECONs with all of our towers to emphasize my own concerns about the need to prevent runway incursions. I did that in July. We have directed our air traffic managers to assure that tower facility managers conduct an analysis of local procedures which address runway crossings and, in particular, the coordination process between local and ground control. We are also strengthening controller training in this area, and are planning on initiating a human factors analysis of our tower cabs in November. We have an aggressive program in this area and intend to continue reinforcing in a variety of ways the need for constant vigilance to prevent runway incursions.

Before discussing the last issue of concern to the Subcommittee, I want to make one last observation concerning air traffic

controller staffing. I have mentioned on a number of occasions that we continually review the level of air traffic controller staffing in order to assure ourselves that it is adequate to meet the anticipated demands on the system. As an outgrowth of our assessments of controller staffing needs, we now plan to increase our controller workforce in Fiscal Year 1986 by 480 people. As in the past, we will continue to monitor our staffing level versus workload demand, and make whatever adjustments are called for.

INSPECTOR STAFFING LEVELS

Another area in which we have been concerned about assuring that adequate personnel resources are available is in the air carrier safety inspector area. You will recall that Secretary Dole increased the authorized staffing for our air carrier inspector workforce by 25% in 1984, returning that complement of air carrier safety inspectors to its prior level of 674. Since that time, we have carefully assessed our inspector staffing and support needs with a view toward assuring that adequate numbers were available to fulfill our air carrier surveillance and certification needs. Based on those assessments, we have now determined that we should add additional aviation safety inspectors and support staff. To meet identified needs, and to add to our workforce at a rate that does not exceed our ability

to absorb and train new inspectors, we are planning at this time to add an additional 150 aviation safety inspectors and support personnel over the next year. A budget amendment for these positions was approved by the President last week. We will continue to assess our inspector staffing levels with a view towards making whatever additional changes may be needed.

That concludes my prepared statement, Madam Chairman. Again, I appreciate having the opportunity to appear before you today, and welcome the opportunity to make FAA technical experts available to the Subcommittee.