STATEMENT OF

CAPTAIN TERRY MCVENES
EXECUTIVE AIR SAFETY CHAIRMAN

AIR LINE PILOTS ASSOCIATION, INTERNATIONAL

BEFORE

SUBCOMMITTEE ON AVIATION

COMMITTEE ON TRANSPORTATON AND INFRASTRUCTURE

UNITED HOUSE OF REPRESENTATIVES

WASHINGTON, DC

MARCH 22, 2007

A REVIEW OF FEDERAL AVIATION ADMINISTRATION OPERATIONAL AND SAFETY PROGRAMS

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Good morning. I am Terry McVenes, Executive Air Safety Chairman of the Air Line Pilots Association, International. ALPA is the world's largest pilot union, representing more than 60,000 pilots who fly for 40 airlines in the U.S. and Canada. ALPA was founded in 1931 and our motto since its beginning is "Schedule with Safety." For more than 75 years, ALPA has had a tremendous impact on improving aviation safety. Today, ALPA continues to be the world's leading aviation safety advocate, protecting the safety interests of our passengers, fellow crewmembers, and cargo around the world. ALPA has lived up to its mandate to the extent that many in the industry, including a former FAA Administrator, have referred to us as the "conscience of the airline industry."

Everyone is all too familiar with the difficult times that the airline industry has faced since the devastation that occurred on September 11, 2001. The industry has lost tens of billions of dollars, many airlines are in, or have recently come out of, bankruptcy, workers have been furloughed, and profits to the industry have been virtually non-existent. However, the contributions of the professional airline pilot to their carriers have literally made the difference between continued operations and cessation of scheduled service. Pilots and other airline workers, employed under the threat of corporate bankruptcy, have given up billions of dollars of salary and retirement benefits. With work rules decimated, many pilots are working longer duty days and flying more hours, taking second jobs or leaving the profession completely. While corporate profits have returned as the price of oil has moderated and revenues have increased, we remain extremely concerned that the bankruptcy era following 9/11 has cut deeply into the safety fabric once afforded by the past 50 years of collective bargaining over work rules and adequate staffing. Weather events occur virtually every day, yet marginal staffing leads to pressure on pilots to fly, since many airlines have an inadequate number of pilots to recover from such events.

We believe that Congress must help us ensure that the airline industry's safety net is not further eroded. Our comments today are intended to focus attention on a number of issues in which greater oversight and attention is needed.

In spite of the challenges and obstacles facing us today, the professional airline pilot has remained focused on operating airliners safely and, as a result, we have played a major role in lowering the U.S. accident rate that is now the envy of the rest of the world. However, we must recognize that the absence of accidents is not necessarily proof of safety. Accidents are simply outcome measures of ongoing risks. Their numbers, or lack thereof, are inadequate and misleading, because their causes are both systemic and probabilistic in nature. History has shown us that well-managed airlines can still have accidents.

My comments center upon the effects of the economic pressures the industry now faces. We are all too familiar with the recent media reports of 10-hour ground delays some of our airlines have experienced. Those delays are unfortunate, but loss of life is unacceptable. We must take those delays as a warning signal that the system needs help and we must proactively manage the safety risk that exists in our industry though Safety Management Systems before an accident occurs. In addition, pilot fatigue, the lack of One Level of Safety in cargo and security, the need for continued modernization of airspace and airport infrastructure so as to safely improve capacity, and the outsourcing of services, are serious issues that government and industry must solve together.

If you count the number of close calls that we have had in the last 12 months, we can see there is much work to be done. Government agencies and industry groups, including the National Transportation Safety Board, the Commercial Aviation Safety Team and ALPA, have made many recommendations over the years to improve safety. Some have been implemented and many others have not. We must not wait for the next accident to occur before those recommendations are enacted.

Keeping our safety record intact, and improving upon it, is going to be difficult in the face of the economic turmoil and lack of resources that we are facing. The airline industry is a national resource and needs the full support of Congress, or it will fail. The next generation air transportation system needs to be funded and Congress can make it happen. In our role as professional aviators who help keep this industry safe, together with the strong support of Congress, we are confident of success – success that is vital to the well-being of our industry and the traveling public.

We are appreciative, therefore, for the opportunity to provide you with our perspective on the current state of aviation safety and operational programs. Given that there is considerable overlap between safety and security issues, we will also identify security concerns as they relate to some of our safety topics.

Executive Summary

In order to effectively address emerging and continuing safety and security issues, ALPA has identified several broad areas of concern that we feel merit Congressional attention. I will summarize each area now and elaborate on them in my further remarks.

- Use of a Safety Management System (SMS) by airports, airlines, and ATS providers.
  - ALPA recommends that Congress monitor FAA's progress in the implementation of SMS to ensure compliance with the ICAO standards.
  - Front-line employee participation in safety risk assessment processes, safety reporting systems, and safety assurance program is critical to a successful SMS
  - ALPA endorses a shift from a blame-based, punitive approach to safety to a proactive, risk-management approach.

- Pilot Fatigue
  - The present FAA flight duty and rest rules are in need of revision.
  - The FAA must close the loophole in the existing flight and duty rules which permit turboprop airline operations to be conducted under FAR Part 135 rather than Part 121.
  - There is a need to provide scientifically-based working hour limits for airline pilots.

- One Level of Safety and Security in the Cargo Industry
  - Current regulations allow cargo-only airliners to operate without a secure cockpit door.
  - ALPA opposes proposals to change Federal Aviation Regulations to allow an increase in the payload requirement for coverage under FAR Part 121.
  - Current rules allow cargo aircraft to operate with no requirement for Fire Fighting.

- National Airspace System Modernization
  - A sustained funding stream is critical to the implementation of the Next Generation Air Transportation System (NextGen).
  - The community must take full advantage of performance-based capabilities emerging for navigation, communications, and surveillance.
  - Wake turbulence research is critical to the ability to employ new equipment and procedures that allow us to position aircraft closer together safely.
  - Industry and government must collaborate on a series of efforts to address the challenge of airport surface management.
  - Before Unmanned Aerial Systems (UAS) are allowed unrestricted access to the NAS, appropriate steps must be taken to perform detailed risk analyses.

- Runway Safety
  - Many airports in the U.S. that serve both domestic and international air carrier operations do not meet standards for runway safety areas.
  - The runway incursion problem should be addressed with the implementation of recommendations of the Commercial Aviation Safety Team (CAST).
  - Runways contaminated with snow, ice, or other foreign materials continue to be a safety problem. There is no requirement to flight test on any runway conditions other than dry or to account for contaminated runway effects on aircraft braking.

- Congress should require and fund industry research to develop means to measure runway friction and require manufacturers to relate these values to aircraft performance

- Outsourced Maintenance Oversight
  - The FAA must have both the mandate and the resources to ensure that they can fulfill their oversight role in the new economic environment of outsourced maintenance.

Safety Management Systems

ALPA is acutely aware of the economic pressures on our industry and recognizes the need for better and smarter operating practices. Emphasis on the balance sheet cannot be allowed to place the traveling public at increased risk of accidents or incidents. As such, ALPA is an active participant in the development and implementation of Safety Management Systems (SMS) for our airlines, airports, and the FAA's Air Traffic Organization. We are working through the Joint Planning and Development Office (JPDO) with government and industry professionals to help establish a national safety policy. We are also working with the FAA as they guide SMS implementation at U.S. air carriers.

SMS is a proactive business approach to managing aviation operations with the goal of increasing safety and reducing risk in the NAS. The International Civil Aviation Organization (ICAO) will require the adoption of SMS Standards in Member States by January 1, 2009. The FAA has developed an Advisory Circular (AC) on SMS for air operators and published a draft AC for airport operators. We applaud the FAA for their efforts to move toward regulatory requirements for SMS implementation at our airlines. Properly constructed and implemented, SMS offers the promise of increased safety for our industry through the partnership of regulatory, industry, and labor organizations by integrating safety through every level of the organization. In a classic win-win scenario, we have the opportunity for real economic savings while reducing the level of risk to the industry.

SMS consists of clear policy, a robust and proactive safety risk management system, a safety assurance system encompassing effective reporting and auditing programs, and a responsive and positive safety culture. Policy must include a documented and clearly defined commitment to the SMS from the Chief Executive Officer (CEO) of an organization. The CEO must lead the drive to continued improvement in the level of safety, management of risk, and to a strong safety culture. An SMS provides business benefits to an organization through preservation of assets and prevention of mishaps and needs the support of the CEO to succeed. The policy must have clearly documented lines of safety accountability for all levels of the organization.

A robust risk management system is essential to an effective SMS. Complete hazard identification can be accomplished only with the inclusion of front line operators. ALPA must be included as a matter of policy in hazard identification, risk analysis, and risk mitigation of new procedures and technology development.

Safety assurance includes an airline's auditing programs and reporting systems. Flight Operations Quality Assurance (FOQA) is one such program. FOQA programs use flight data recorder information to measure actual line operations.

FOQA data has proven valuable in adjusting internal airline procedures, in identifying and correcting ATC procedures, and in identifying problems at particular airports. The confidentiality of this information must be maintained through regulatory protection to prevent misuse of the data. Deficiencies and problems identified through FOQA data should be used solely for safety purposes.

The FAA's Aviation Safety Action Program (ASAP), which provides a means for airline employees to report on safety problems without fear of retribution, is an example of a non-punitive reporting system. An effective means to determine what is really happening in the operation is through the reports of the people actually doing the work. A safety report is less likely to be filed if an individual's position or livelihood is in jeopardy. The idea of a "just culture" recognizes that well trained, motivated employees still make mistakes, and focuses on identifying and correcting problems, rather than on assigning punishment and blame. This is a fundamental paradigm shift from an enforcement culture, and is imperative if we are to collect real and complete data on actual system operations. It is this data which helps to identify systemic hazards and mitigate risk before there is an incident or accident. We must move toward confidential data sharing systems across airlines and government organizations so we can proactively manage the aviation system. There must be a documented process for collecting and analyzing safety information and implementing corrective action.

While FOQA and ASAP programs are examples of non-punitive reporting systems that work, there has been a recent assault on the basic tenets of ASAP by both the FAA and air carriers. This has resulted in termination of the FOQA and ASAP programs at a major air carrier. FOQA programs continue to have problems in the area of data de-identification when third party analysis is utilized, and both programs suffer from inadequate data analysis, resulting in limited and ineffective corrective action being recommended. If these problems are allowed to continue, the mutual trust built up by participating parties will be destroyed. There will then be a strong disincentive for employee reporting and program participation.

ALPA supports the development and implementation of SMS in our industry, but recognizes the possibility for abuse. Effective implementation strategies, common objectives for safe system operations and strong Congressional oversight will guard against that abuse. We recommend that Congress monitor the FAA's progress in the implementation of SMS to ensure compliance with the ICAO January 2009 deadline. One area of concern regarding SMS implementation is that there could be a call for reducing or even eliminating regulatory standards and oversight once SMS is in place. In the past, airlines regularly exceeded minimum statutory requirements for operations. Economic pressures and the realities of competition have caused numerous carriers to reduce crew training, maintenance standards, staffing, and operational margins to the regulatory minimum. ALPA recognizes the need for regulatory oversight in SMS and strongly opposes any attempts to use SMS as a replacement for a comprehensive regulatory framework.

For additional information, we have provided to the Committee a copy of ALPA's SMS Manual, "Background and Fundamentals of the Safety Management System (SMS) for Aviation Operations, Second Edition," February 2006. We have also provided an article from the ICAO Journal, Volume 61, Nov/Dec 2006, "Concept of Safety Management System Embraced by Many Countries."

ASAP Program for ATC Controllers

As an industry, we have seen the value of ASAP go far beyond the cockpit to other employee groups in the airlines. Non-punitive reporting programs for dispatchers, mechanics, flight attendants, and ramp personnel are also being created. Although there has been a shift away from assessing blame and meting out punishment toward an actual resolution of problems, the stance taken by the FAA toward its own air traffic controllers has yet to change. Operational errors are viewed by the FAA as reasons for discipline. If we hope to get true operational information from our air traffic controllers, they must also operate in a "just culture."

One of the things that has made the U.S. air transportation system so effective is the synergy that comes from pilots and controllers working together to make sure passengers and cargo get from origin to destination safely, time after time after time. Pilots and the airlines they fly for reap the safety and economic benefits of ASAP. In the air traffic arena, that same culture does not exist and the front line controllers' advice and input is not welcomed. They do not have a means to report safety or operational issues in the same cultural environment that many of the pilots at the other end of the radio do. Even though the FAA has encouraged and promoted ASAP for our nation's airlines, they have not done so internally for the benefit of their own organization. In order to take the next step in aviation safety, all components of the system must be involved, including ATC. We strongly recommend that the FAA expeditiously make ASAP a reality for air traffic controllers. Just like airlines, this will require a commitment from the top of the FAA's organization, in this case the FAA Administrator. The Administrator can make this happen and it will have a tremendous impact on the safety and efficiency of our entire air transportation system.

Pilot Fatigue

Fatigue is a present and growing problem within the airline industry. ALPA's own internal research indicates that fatigue has reached an alarming level among airline pilots. ALPA has – thus far without success – encouraged the FAA to modernize the flight and duty time regulations for all U.S. licensed commercial airlines to comply with the results of current scientific research and principles.

Because the FAA's present fatigue regulations are antiquated and dated, they have frequently been augmented by negotiated work rules. Through the restructuring of pilot contracts and the absence of negotiated improvements at many carriers, there has been non-uniform treatment of flight duty and rest limitations at the various airlines. In recent times, there has been severe pressure on individual airlines to slash pilot staffing and reduce rest periods to minimum levels due to a belief that such behavior would result in "productivity" increases necessary for economic survival. The fatigue cushion once provided by negotiated work rules has been completely eliminated. This elimination of negotiated work rules means that for more and more pilots the bare minimum protections afforded by the FAA flight and rest regulations have become a daily way of life. The current cumulative effects of reduced rest resulting from working to minimum FAA limits, combined with the effect of personal financial stress and uncertainty brought about by more than five years of severe economic downtimes in the industry,

have taken a severe toll upon pilots. Many pilots feel that they are just hanging on to a barely tolerable job instead of pursuing a once-promising career. At one major U.S. carrier, the company has reportedly had to recall seven or eight pilots from furlough for each one that is willing to return to flight status. The return to airline profitability for Wall Street is being paid for by the daily blood and toil of the airline pilots and other workers.

The present FAA flight duty and rest rules applicable to airline pilots are a dated patchwork of regulations that have been developed over the past fifty or sixty years. For example, the rules usually applied to air carrier cargo operations – the supplemental rules – were developed over 50 years ago for unscheduled freight operations using piston-powered aircraft. Many of these post-WWII vintage aircraft had unpressurized cabins, cruise speeds in the 200-knot range, and flight crews consisted of at least two pilots and often a flight engineer. In the 21st Century, carriers have used modern technology to decrease cockpit crew size and travel times and to increase pilot and aircraft utilization. This increase in technology and reduction in staffing has put additional pressures on flight crews. As the overall system complexity continues to increase, the hazards associated with pilot fatigue in the industry also increase and are as great as they have ever been.

During the mid-1990's, a number of high-profile aircraft accidents attracted public and media attention to questions of aviation safety. In response to this public interest, the FAA Administrator helped direct the agency toward a regulatory system for commercial aviation based upon the principle of "One Level of Safety." In January 1995, former DOT Secretary Federico Pena convened an unprecedented aviation safety summit that brought together over 1,000 officials from government, airlines, airline labor, and other segments of the industry to establish joint priorities and strategies for enhancing aviation safety. These events led to the landmark FAA ruling on the "One Level of Safety" ("i.e., the Commuter Rule"). The Commuter Rule required all 14 CFR Part 135 operators to transition to 14 CFR Part 121 by March 20, 1997.

This standard, which has been applied to large airlines and regional airlines (formerly known as "commuters") alike, has become one of the FAA's guiding regulatory principles during the last decade and has been a widely heralded success.

The FAA proposed to modernize the flight duty and rest regulations during the adoption process of the "Commuter Rule." That attempt stalled for a number of reasons. Industry, pilots, and the regulators were unable to reach a consensus and the industry-wide reform proposed in 1995 was not implemented. The commuter airlines were permitted to continue to operate their turboprops under the existing FAA fatigue rules pending the anticipated industry-wide reform. Because the anticipated reform of the rules never took place, small airliners continue to fly today under those less restrictive rules. This is not what was intended. Indeed, some airlines are currently forcing travelers back into these smaller aircraft to take advantage of the less restrictive pilot fatigue rules and lower cost. Over a decade later, the need for industry-wide reform in the FAA's flight duty and rest rules is still apparent. The NTSB's 2007 Most Wanted Transportation Safety Improvements includes "[s]et working hour limits for [pilots] based on fatigue research, circadian rhythms, and sleep and rest requirements." The current FAA rules do not adequately address fatigue research, circadian rhythms and realistic sleep and rest requirements as recommended by the NTSB.

For example, domestic airline pilots currently have a weekly flight time maximum of 30 hours. Domestic pilots are those that operate entirely within the continental United States. What is not widely understood is that the weekly flight time limitation for pilots does not include *any* of the required time spent performing ground-based duties. In reality, it is not unusual for airline pilots to find themselves working shifts approaching 15 hours per day to accomplish 7 to 8 hours, or less, of daily flight time. Moreover, the pilot's 7 or 8 hours of daily flight time may be spread out over 4 or 5 individual flight legs. Each of those flights has both pre- and post-flight duties, none of which count against the flight time limitations. The domestic pilot's total maximum total duty day limit, including flight time and ground based duty, is 16 hours per day under current FAA limits. That is simply too long. Additionally, there is no limit to the number of times per month lengthy duty days may be assigned – so long as flight hour limits are not exceeded – increasing the potential for cumulative fatigue. Today's airline pilot is typically working substantially more hours for less money and spending more hours away from home than his or her predecessors.

Currently, airline pilots are routinely assigned a duty day up to 15 hours, followed by only an eight hour break, followed by another lengthy duty day. Unfortunately, this eight hour minimum break does not provide an adequate opportunity for recuperative sleep. Let us be clear; this is not an opportunity for eight hours of sleep, but rather a period away from the aircraft. During the 8-hour break, it is not unusual for a pilot to be left with a maximum 4 or 5 hours per night sleep opportunity actually spent in a hotel room. This occurs because the FAA has determined that all time away from the airplane on a trip counts as "rest." Incredible as it may seem, the time a pilot spends waiting for a hotel shuttle and even the time spent going through airport security screening is defined as "rest" under the current FAA regulatory scheme. Pilots need a longer, and genuine, daily rest period.

Moreover, new aircraft types capable of long-haul operations in excess of 16 hours of continuous flight are being built, developed and placed in service. This type of flying is done under the FAA international, or flag, rules across multiple time zones, with crossings of 12 to 14 time zones not uncommon. These flights result in pilots being on duty at a time when they would normally be asleep at home. Traffic on existing international routes is increasing. Because of the length of these flights, additional pilots are required to be aboard the aircraft. It is critical that that the onboard rest facilities provided to pilots on these long haul international routes are adequate. Scientifically based rules to address these types of long haul flying are urgently needed.

ALPA believes that there is a pressing need to provide rational, scientifically-based, working hour limits for pilots engaged in all commercial airline operations. The weight of the scientific evidence over the last 20 or so years has firmly established that the vast majority of humans, including pilots, simply cannot be expected to reliably and safely perform operational tasks with the same degree of effectiveness as at the beginning of the shift, past a time on duty beyond 12-14 hours. Recent aviation accident studies point to a statistically significant increase in the rate of accidents beyond 12 hours time on duty. Other studies show that 8 hours of time at the controls between required rest periods is the maximum period that one should normally be able to expect a rested pilot to perform reliably and safely. The NTSB and other accident investigation bodies are increasing the focus on fatigue as a factor in aviation accidents as well as

in accidents in other modes of transportation. Additionally, scientific evidence continues to mount that the negative effects of disrupting a person, or pilot's, circadian rhythm, i.e., the sleep-rest-wake cycle have been grossly underestimated.

When addressing possible revisions to the current flight duty and rest regulations, airlines and their pilots are immediately at cross-purposes. Managements are looking for more availability and "productivity" from flight crews. For flight crews, safety advocates and scientists, the question is often not whether to change the current rules, but rather *how much* to reduce the current flight and duty limitations to enhance safety, raise human performance to acceptable levels, and reduce risk. Hence, the past approach of creating proposed regulations without the assistance of scientists and technical advisors, or reference to the technical literature, but rather based upon notions of operational necessity, has failed. What is needed are rules which are grounded in the results of scientifically based fatigue studies and safety reports.

In conclusion, pilots performing commercial flying duties must have regulations that provide them with an opportunity to get an adequate night of sleep before each duty day of flying. This, combined with a scientifically determined maximum length duty day, including provisions for the type of flying accomplished, whether it be traditional short haul, multiple sector flying or flights across multiple time zones, is mandatory to ensure that the U.S. air transportation system continues its envied record of aviation safety. ALPA stands ready to work with regulators and the industry to develop rules that will adequately address the problem of pilot fatigue.

One Level of Safety and Security in the Cargo Industry

ALPA Recommendations to the NTSB

On March 30-31, 2004, the National Transportation Safety Board (NTSB) held a Cargo Safety Forum to discuss the safety issues and concerns confronting the air cargo industry. The NTSB brought government and industry groups, including ALPA, together to make presentations outlining their positions on significant safety issues. The Forum held technical panel sessions on various subjects which included the current state of the cargo industry, operational and human factors considerations and regulatory issues. We made presentations on each panel and submitted formal substantive papers that outlined our positions.

There are many areas of differences between passenger and all-cargo operations. We have provided to the Committee additional materials which provide details of those differences and our recommendations for safety improvement, most of which have yet to be satisfactorily addressed. We urge FAA to support these recommendations and make the changes that are needed to bridge the safety gap between passenger and all-cargo operations.

Flight Deck Doors

After the attacks on the United States on Sept 11, 2001, the DOT's Rapid Response Team (RRT) recommended that reinforced flight deck doors, among other measures, should be part of *"...a*

retrofit of the entire U.S. fleet of aircraft." ALPA strongly believes that the intent of this recommendation was that all U.S. cockpits should be protected.

Four years ago, ALPA testified before this very body and expressed concern that the implementation of the RRT recommendation was incomplete. ALPA said then, and we reiterate now, that while we understand that unique design circumstances exist and should be considered, we do not concur with the exclusion of any aircraft operated under FAR Part 121 based on its size or mission. The current regulations related to flight deck security exclude an entire class of airliners operating the same aircraft at the same time in the same airspace as all other airliners – those operated by cargo-only airlines. These aircraft all serve equally well as terrorist-guided weapons of mass destruction. The regulation as eventually promulgated applied only to cargo aircraft that had a cockpit door installed on the date of the rule and left unaddressed the issue of new cargo aircraft. As I sit before you, an airline is ordering brand new Boeing 777 freighter aircraft that were neither designed nor produced when the flight deck door rule was written, and they are planned to be delivered without a cockpit door of any kind. These aircraft will carry not only freight, but potentially dozens of people. Those people will not buy tickets, and so they are not technically passengers. Neither do they necessarily go through the same rigorous screening that fare-paying passengers do. In the passenger world, airlines have a hardened cockpit door, and some airlines are even moving forward with secondary barriers to further improve the safety and security of the cockpit. Meanwhile, in the all-cargo world, even the most rudimentary door is still not required, regardless of how many people are on the airplane and how much of a screening process they have undergone. This situation is unacceptable to ALPA's pilots and should be unacceptable to the Congress, TSA, and the FAA.

Detailed information has been provided to the Committee on ALPA's recommendations for improving cargo security.

Opposition to Changing 14 CFR Part 119

One particular item that has given us great apprehension and concern is the regional cargo carrier segment of the air cargo industry advocating a change in the Federal Aviation Regulations (14 CFR Part 119). Currently, all aircraft, but specifically all-cargo aircraft with a useful payload of 7,500 pounds and below, are required to operate under regulations contained within 14 CFR Part 135 *Operating Requirements: Commuter and On Demand Operations*. Aircraft above this weight are required to operate under the increased safety and operational requirements of 14 CFR Part 121, *Operating Requirements: Domestic, Flag, and Supplemental Operations*. ALPA maintains its opposition to any increase above the current weight requirement. An increase in the current useful payload would result in hundreds, possibly thousands, of turbo-propeller and jet aircraft leaving Part 121 requirements behind and being operated under a lesser safety standard as Part 135 carriers.

Enhance Safety of Airports Used by All-Cargo Operators

Another area of concern for all-cargo pilots is the fact that airport standards for their operations are much less stringent than are those for passenger aircraft operations. Federal law requires the FAA to regulate airports serving scheduled passenger operations, but is silent on regulation of airports serving all-cargo operators. Indeed, 14 CFR Part 139, Certification of Airports, specifies the "...rules governing the certification and operation of land airports which serve any scheduled or unscheduled passenger operation of an air carrier that is conducted with an aircraft having a seating capacity of more than 30 passengers." Since all-cargo aircraft, even those of the same type as passenger counterparts, do not necessarily meet the minimum seating capacity threshold, they are not covered by the same airport safety requirements.

The significance of this regulatory disparity becomes apparent when the scope and depth of Part 139 is examined more closely. Part 139 prescribes an extensive set of airport-related conditions, capabilities, facilities and equipment that must be provided in order for the designated aircraft to operate into that airport. These include such items as aircraft rescue and fire fighting (ARFF), hazmat handling and storage, an airport emergency plan, marking and lighting standards, snow and ice control programs, physical protection of navigational aids protection, and wildlife hazard management.

One of the most glaring and critical discrepancies between the two types of airport standards is the allowance of cargo aircraft – frequently loaded with hazmat – to operate at airports with no requirement for ARFF. During its investigation of a DC-10 freighter accident at Stewart International Airport in Newburgh, NY, in 1996, the NTSB observed that "...aircraft rescue and firefighting capabilities must also be improved so that firefighters are able to extinguish aircraft interior fires in a more timely and effective manner..." and made recommendation A-98-077 that airport emergency plans should specifically address hazardous materials emergencies.

The FAA response to this particular recommendation was to amend FAR 139.325 for emergency plans and publish guidance to airports about being prepared for hazardous materials incidents. NTSB classified this response as "closed – acceptable action," but we disagree with that categorization. We call on Congress to require that FAA broaden the applicability of pertinent regulations to include certification of airports which serve on-demand, all-cargo aircraft operators.

Carriage of Batteries on Passenger and All-Cargo Aircraft

ALPA believes that the current level of transportation regulations for batteries of all types is inadequate, and that the degree of risk and incident history justifies more stringent control of batteries in air transportation. We believe that it is inappropriate to grant a Special Provision in the Hazardous Materials Regulations (HMR) exempting the transport of batteries as cargo, especially in large quantities, considering that items such as paint, a flammable liquid, are fully regulated. ALPA strongly believes that cargo shipments of batteries should be fully incorporated in the HMR – including packaging requirements, acceptance checks, package testing, labeling, quantity limitations and pilot notification – because damage to a battery may be all that is

necessary to start a fire and may take place hours after the damage has occurred. In the case of many other highly regulated substances, a damaged shipment would only result in a liquid spill, absent an ignition source.

Accordingly, we continue to urge the Pipeline and Hazardous Materials Safety Administration of the Department of Transportation to introduce a rulemaking to end the use of a Special Provision for the transport of cargo shipments of batteries and we respectfully solicit Congress' support for same.

While batteries of all types deserve additional scrutiny, ALPA believes that the characteristics of lithium metal batteries make them particularly ill-suited for transport in bulk quantities aboard aircraft until sufficient packaging standards can be developed. Following a fire involving lithium metal batteries in Los Angeles in 1999, the FAA Technical Center undertook a study of lithium metal batteries and their response to an external fire source, (reference study DOT/FAA/AR-04/26, published June 2004). Among the study's findings, the FAA found that a fire involving one lithium metal battery would spread to all batteries in the shipment, that the fire would burn at a temperature above the melting point of aluminum, and that it would be accompanied by a pressure pulse that could cause the cargo compartment lining of an aircraft to fail. Especially sobering was the finding that the traditional aircraft fire suppression agent, Halon 1301, would have no effect on the fire.

Based on the Los Angeles fire and the FAA Technical Center report, the US DOT took the unusual step of banning bulk shipments of lithium metal batteries aboard passenger aircraft, except when contained in or shipped with equipment, in the United States. While ALPA supports this move, we do not believe that there is any safety justification for allowing lithium metal batteries to continue to travel under Special Provision on cargo-only aircraft. Accordingly, until adequate packaging standards can be developed to protect all occupants of an aircraft in case a shipment of lithium metal batteries is exposed to fire of any origin, we urge the Department of Transportation to ban bulk shipments of lithium metal batteries from both passenger and cargo aircraft.

National Airspace System Modernization

ALPA is vitally interested in the strength and long term viability of the U.S. National Airspace System (NAS). It is not only our workplace, but the NAS is a major economic engine in the U.S. and the world. As such, it is in our best interests as pilots and as citizens to ensure the safety and efficiency of this critical national resource. At a recent industry symposium, the FAA reported that aviation in this country represents a total economic impact of $690 Billion, so this is not a resource to be taken lightly.

Although air travel today is vastly improved from the early days of aviation, the NAS is in dire need of an overhaul if we expect it to keep up with the demands of the 21st century. FAA Administrator Blakey recently commented that improvements forecast for the NAS through 2025 are expected to come with about a $20 billion price tag for the government -- industry is expected to pay a similar amount. Clearly, planning these improvements is something we need to do right the first time.

Today's U.S. air traffic system is thought of as the safest in the world. Accidents are so rare that the statistics are almost meaningless – the statistical odds say that one must fly hundreds of lifetimes to have just a 50:50 chance of being in a commercial airline accident. But we never stop trying to improve the safety and efficiency of that system. As pressure continues to mount to meet increasing demand, though, we need to make sure that the aviation community, led by the FAA, does not become a culture of capacity rather than a culture of safety. At some airports today, we see things that concern us. We see controllers placing airliners outside of the protected airspace at major metropolitan hubs like Memphis, Detroit, and Philadelphia in efforts to keep the traffic moving and keep capacity up. This means that the risk at some airports is higher than at others for reasons that are completely within the control of "the system." We need to be vigilant for these kinds of operations and make sure that we keep safety as the primary driving force for NAS operations.

Over the years, the air traffic control system has transitioned from separating flights using radio position reports to one employing satellite technology, data link communications, and in some areas, accurate surveillance without using traditional ground-based radar.

All of these changes have two things in common. They have made air travel safer, and they were successfully accomplished when there was a collaborative relationship between the government and the private sector.

ALPA is proud to be a full partner with the FAA and the rest of the aviation industry in working together to design and implement the air traffic management procedures and systems that will carry us forward. Our President sits on the Institute Management Council of the Next Generation Air Transportation System or "NextGen" Institute. The Institute was established in 2005 for the purpose of establishing a collaborative relationship between the government and private sector that will serve as a catalyst for fostering a shared vision of the NextGen and combine the talents and resources of government, industry and academia. The result will be a roadmap for the private sector and government to use as we move together from today's NAS to the 2025 version, the NextGen. The Institute is the mechanism for the FAA's Joint Planning and Development Office (JPDO) to access world-class private sector expertise, tools, and facilities for application to the NextGen activities and tasks.

The private sector and government have often worked together to make major changes in the NAS. Changes like radar, all-weather landing aids, the traffic collision avoidance system (TCAS), GPS, and traffic flow management using collaborative decision making are all examples of fundamental changes that have had a major influence on the NAS. In each example, the private sector and government worked together to develop system and equipment specifications, new controller and pilot procedures, training requirements, and the development and implementation of ground and airborne equipment. ALPA and the rest of industry are actively working with the FAA and the JPDO to ensure that NextGen is yet another example of a successful collaboration leading to fundamental change to the NAS.

However, the continued road toward the implementation of NextGen will require an additional element – national resolve. Just like the development of the interstate highway system during the 50s and 60s, NextGen is a major technological step forward.

National resolve is required to continue the operation of the current system while we research, develop, and implement NextGen.

National resolve is demonstrated by a sustained funding stream. In 1997, while a member of Congress, former Secretary of Transportation Norman Mineta chaired the National Civil Aviation Review Committee (NCARC). NCARC recommended that the FAA's funding and financing system receive a federal budget treatment that ensured revenues from aviation users and spending on aviation services were directly linked and shielded from discretionary budget caps. This was made to ensure that FAA expenditures would be driven by aviation demand. While some movement has been made on this issue, this recommendation has not been fully implemented. Without national resolve, the funding of NextGen is uncertain, and will most certainly cost more and take longer to implement.

We cannot accurately predict what aviation's future will bring. But whether it is air carriers, unmanned aerial vehicles, micro-jets and "jet taxi" service, or some combination thereof, we do know that the system of the future will involve a great many more operations than we have today. In addition, as we transition to that system of the future, we will have to recognize that there will continue to be a large variety of aircraft capabilities in the NAS. NextGen must be a flexible and scalable system capable of accommodating any fleet mix that evolves. The American people deserve a system that will readily accommodate that new demand – seamlessly and safely.

Specific Modernization Efforts

We would now like to focus on some specific modernization efforts.

In April 2002, FAA Administrator Marion Blakey announced the migration away from a ground-based navigation system to a required navigation performance (RNP) system using GPS satellites. This was a major policy decision. Airlines have long complained of sending aircraft to the boneyard with equipment that has never been used – equipment capable of flying independent of the ground-based navigation system. This avionics equipment had been developed and installed with the hope that the capabilities could be used. This was an example of how the private sector and government failed to work in a collaborative manner.

With Administrator Blakey's announcement, we are now taking advantage of satellite-based equipment on the aircraft to fly RNAV departures, arrivals, and RNP precision approaches at some of our busiest airports. This technology will improve the efficiency and capacity of the national airspace system by allowing instrument procedures that minimize noise, offer greater access to all runways in all weather conditions, and provide more safety than ever before.

One of the advantages of a satellite-based navigation system is the ability to provide precision instrument approaches to all runways. To meet this goal will require a rethinking of our instrument procedure production and maintenance capability. Currently the FAA develops and maintains over 13,000 instrument procedures. Approximately 20% of these approaches are satellite-based procedures. This percentage is increasing as technology advances. However, many of the current RNAV and RNP procedures are "overlays" meaning that they utilize the

same paths through space as the original procedure, but they employ new technology to establish the aircraft position. Originally, this was an effective way to develop operating experience with new systems, and that benefit still exists. But to truly realize the economic and operational benefits available through space-based procedures, we must break out of that mold and design more procedures that optimize use of the greater accuracy afforded by these new capabilities. Along with potential increases in capacity, this will have the additional benefits of reduction in noise and emissions in many areas.

A year ago, Administrator Blakey announced the surveillance system of the future – Automatic Dependent Surveillance – Broadcast (ADS-B). ADS-B, unlike radar, does not rely on a ground-based surveillance system. With ADS-B, each aircraft broadcasts a position report. Any other receiving station, either on the ground or other aircraft can use the position report. Now, just like the air traffic controller, other aircraft will have the capability to know where other aircraft are on the ground or in the air. Just like radar increased the air traffic controller's situational awareness, ADS-B will also increase the pilot's situational awareness.

Once again, to be successfully implemented, ADS-B will require collaboration between industry and government. The FAA will recognize a substantial savings by reducing the number of radars. The savings should be used to provide incentives for the early installation of ADS-B avionics on aircraft. This approach, which was successfully used in the Capstone Program in Alaska allows for the rapid equipage of aircraft, resulting in a faster implementation. Faster implementation reduces the costs and increases the benefits.

Additionally, the government and industry should push for the development of air-to-air ADS-B applications that benefit the users. These air-to-air applications should result in faster equipage and a safer, more efficient NAS that benefits all.

During the summer of 2000, the NAS saw a large number of delays. Government and industry worked together to implement a series of programs to reduce these delays. These programs have had some effect in reducing delays, but more work is needed.

Departing aircraft are waiting in long lines to taxi to runways while arriving aircraft often must wait for gates to become available. Each new runway takes an average of over 10 years to design and build and costs billions of dollars, so accurate, effective planning is essential. According to Administrator Blakey, the new runways envisioned by the current FAA OEP, or Operational Evolution Partnership, represent a huge potential increase in the number of operations each year in the NAS. If we are going to safely accommodate all of those operations, capacity enhancements must be done intelligently. Many of those new runways are necessarily going to be very close to existing runways at major airports. We must continue to develop the science to support procedures and systems that will allow us to continue operating safely as the need to put airplanes closer together continues to grow. Chief among these research efforts that are needed is the study of wake turbulence. As our ability to safely position aircraft closer together continues to improve, the likelihood of encounters with another aircraft's wake will increase. However, as advanced as aviation is in many areas, we actually have very little hard operational data about how wakes behave. We know that they can be dangerous, even deadly under the right circumstances, but we really do not know what those circumstances are – at least

not with enough certainty to bet the lives of 200-300 people. Some research is being done but these efforts must continue if we are to know we can safely operate in the NextGen environment.

Airlines have been forced to increase the scheduled time between departing the gate and arriving at the destination gate. A flight of a propeller-driven Douglas DC-7 in the 1950's between Dallas and Atlanta had a shorter scheduled time than does a flight today in a jet Boeing 757. The extra time is necessary to navigate on the ground to and from the runway. At some airports, some airlines allocate over 40 minutes just to get from the departure gate to the runway. Increased airport surface congestion increases the chances of runway incursions and possible collisions.

Industry and government must collaborate on a series of efforts to reduce the challenge of airport surface management. The use of ADS-B is needed for increased surface situational awareness for both pilots and controllers. The collaborative use of flight data, such as departure time of a flight from the gate and the estimated time before a flight will touchdown, can be used by the airport, air traffic control, and airline managers to more effectively manage surface traffic.

The potential benefits of more effective surface management are tremendous. Less fuel will be consumed while taxiing which will result in immediate savings. Reduced taxi time also translates into less noise and emissions. Better knowledge of exactly where the aircraft is on the surface translates into more efficient gate management and will allow the air traffic controller to arrange departures into a more efficient departure stream.

We need to also be mindful that all the improvements envisioned for NextGen rely on good information about what the system is doing. Not only on the tactical level, meaning where each aircraft is and what it needs to do to operate efficiently, but more importantly on the strategic level – what will be happening at each point in space over the next several hours. This information has to be integrated across the NAS, and to do that requires a tremendous amount of computing power. That capability is provided by ERAM, or Enroute Automation Modernization in NextGen. This critical program is easy to overlook – it is not very visible and it is not glamorous at all. It is, however, the heart of the system. The current "host" or computer network that allows similar communication today is old and cannot meet the demands of NextGen. ERAM, like the rest of NextGen, must have long-term funding guaranteed if we are to realize the promise of NextGen.

NextGen has the potential to revolutionize the NAS and our air transportation system, but only if private industry and government work together. By collaborating, we have made major strides in the more than 103 years since the Wright Brothers first flew. However, the next 20 years could see major changes in aviation. Forecasted increases in air traffic of two to three times today's traffic cannot be met in today's NAS. The changes will be not be easy and will require much work and effort. ALPA looks forward to collaborating with industry, academia, and government to meet these challenges.

Finally, let me comment on the introduction of Unmanned Aerial Systems, or UAS into the NAS. We have a vital safety interest in these aircraft and the systems that support them, including, we might add, the operator on the ground who we believe should have the same qualifications as any other pilot of an aircraft.

Pressure to allow widespread UAS access to the NAS is fast approaching for commercial applications and that access has been a reality for Department of Defense operations for some time. ALPA is concerned with the level of risk assessment utilized to prove that current UAS operations have met the Equivalent Level Of Safety (ELOS) for operations in civil use airspace. So far, the track record for UAS accidents and data link dependability has not supported the claim that they are "just like any other airplane, but without a pilot on board." Before these aircraft are allowed unrestricted access to the NAS, including operating above or below the altitudes usually used for airline operations, appropriate steps must be taken to perform detailed risk analyses. This is the only way we can assure the safety of our passengers and cargo.

Runway Safety

We would like to address three major areas of concern with respect to runway safety. The first concerns the hazard posed by aircraft overruns and undershoots, which are addressed by enhancing runway safety areas, artificially shortening runway length available, and installing engineered arrestor beds at the ends of runways. Another area is that of runway incursions, which is addressed through airport visual aids, aircraft, airport and ATC technology, training, and procedures. Lastly, aircraft stopping performance can be improved through better runway friction measurement practices and timely, thorough contaminant removal.

Runway Safety Areas

In the event that an aircraft is unable to stop normally before the end of the runway due to mechanical, weather, or other operational problems, a runway safety area is intended to help ensure that an incident does not become an accident.

International Civil Aviation Organization (ICAO) recommends that runways have a defined "runway safety area" free of obstacles and extending well past the end of the actual runway. In the U.S., Advisory Circular 150/5300-13, Airport Design, provides the criteria for an acceptable runway safety area.

Many airports in the U.S. that serve both domestic and international air carrier operations do not meet U.S. or international standards. According to recent FAA statistics, 45% or 460 of the 1,024 certificated airport runways in the U.S. must be improved with regard to runway safety areas.

Three solutions exist for the airports that do not meet current standards.

1. Airport authorities should remove obstacles, fill ravines or level ground to create adequate runway safety areas. This option may not be possible for urban airports or others in a confined geographic area.
2. Airports can decrease the effective runway length of certain runways to create adequate runway safety areas. This option may not be attractive because it could potentially mean reducing the size and weight of aircraft that use the airport.
3. If the physical space simply does not exist to create the recommended runway safety area, an Engineered Materials Arresting System (EMAS) could be installed.

4. This system uses aerated, frangible concrete to bring an aircraft to a quick but controlled stop, much like runaway truck ramps on steep mountain highways. EMAS is a solution that has already proven successful in actual operation. It is worth noting that EMAS has the advantage of being generally unaffected by snow and/or ice contamination and functions to the same level of arresting capability as if it is bare and dry.

Runway Incursions

Next Tuesday marks the 30th anniversary of the worst aviation accident in history – a runway incursion. On March 27, 1977, two B747's collided on a runway at the airport in Tenerife, Canary Islands, while operating in very poor visibility and 583 lives were lost in that single event.

The risk of another runway incursion event which could kill hundreds of people in a single accident is real and growing larger as the result of current, and forecast, increases of traffic within the National Airspace System. Fortunately, the incursion problem has been exhaustively studied by dozens of experts and mitigations have been devised that can greatly lessen the risk inherent with ground operations today. The question that must be answered is whether the government and industry are willing to spend the resources that are required to achieve that level of safety.

We have traveled this road before. Ingenious technology, combined with political will and monetary resources, have virtually thwarted two of the deadliest types of accidents: mid-air collisions and controlled flight into terrain (CFIT). Numerous mid-air collisions, resulting in thousands of deaths over several decades, occurred when air traffic controllers and pilots used to rely on basic ground radar and see-and-avoid techniques to maintain separation. The development of the Traffic Alerting and Collision Avoidance system (TCAS) equipped pilots with an invaluable tool that warns them of an impending collision and gives instructions on how to avoid it. Since the introduction of TCAS, many mid-air collisions have been averted and many lives have been saved.

CFIT accidents have been similarly catastrophic and caused hundreds of casualties during the era when controllers and pilots relied on ground radar, charts, and ground visual references to maintain adequate clearance from the ground in low visibility conditions and periods of darkness. The invention, development, and implementation of the Ground Proximity Warning System (GPWS), and its newer replacement, the Enhanced GPWS, or EGPWS, has had the same powerful impact on reducing the number of CFIT accidents that TCAS has had on reducing the number of mid-air collisions. In both instances, it was demonstrated that existing technologies, training and procedures were insufficient to satisfactorily meet the challenge of preventing incidents and accidents. In both instances, enhanced situational awareness and conflict alerting capability were combined for a powerful one-two punch to the heart of the problem.

So it is with runway incursions. *The risk posed by runway incursions can be significantly reduced – by up to 95% according to the U.S. Commercial Aviation Safety Team – with a combination of technologies which greatly improve the pilot's situational awareness and provide*

conflict alerting capability during ground operations. For decades, ALPA has led the industry in the development and promotion of airport-related measures to reduce the potential for incursions. In the early 1990's, ICAO adopted new airport sign standards bearing ALPA's influence, and new signs have been installed at nearly all commercial airports in North America, and many other airports around the world. New paint markings, vehicle driver training programs, pilot training programs, localized runway incursion action teams and numerous other initiatives have been undertaken with the goal of reducing incursions. While all of these programs have had a positive effect and are valuable, the simple truth is that, according to government statistics, the number of runway incursions remained nearly constant from 2002 to 2004 while total traffic volume decreased by three (3) percent.

We conclude that the runway incursion problem – and its commensurate potential for causing death and injury to hundreds of travelers and crewmembers in a single accident – can be addressed to high degree of satisfaction with the implementation of recommendations made five years ago by the U.S. Commercial Aviation Safety Team (CAST). The Executive Summary of the CAST's runway incursion team's 2002 study, which gives an overview of the commitments made by the government and industry to address the incursion problem, has been provided to the Committee. We call upon FAA and industry to make good on their commitments to institute the CAST-recommended mitigations and prevent further catastrophic events like the one that occurred 30 years ago.

Contaminated Runway and Aircraft Performance

Runways contaminated with snow, ice, slush, standing water, glycol, reverted rubber, or other foreign materials during all seasons of the year, continue to be a safety problem for both takeoff and landing. Our crews tell us that they continue to encounter inadequate removal of contamination and the lack of timely and accurate runway condition reports. Even when they are planning their flights and they know what contaminants lay ahead at their destination, our crews still do not have validated flight test performance data for operations on contaminated runways to ensure that they will be able to stop on the paved surface. Airplanes in commercial operations continue to slide off of slippery runways. But that is just one of the problems associated with operating on contaminated surfaces. Visual cues (i.e., runway markings) such as those that aid in landing in the prescribed touchdown zone may be obscured and make identifying the normal touchdown point difficult or impossible. In addition, signs and taxiway markings obscured by contamination increase the possibility of confusion on the ground which may lead to a runway incursion.

Although much attention has been focused on the landing phase, the rejected take off situation is similar because of the reduction in friction, and it has a higher risk for a catastrophic loss because of the higher aircraft weight due to fuel onboard. The industry must address a total solution that will make all contaminated runway operations safer.

The solution must encompass not just the runways themselves, but include airport management.

FAA's Advisory Circular 150/5200-30A, Airport Winter Safety and Operations states that "*Snow, ice, and slush should be removed as expeditiously as possible to maintain runways, high speed turnoffs, and taxiways in a "no worse than wet" condition.*" But in our experience there's a significant amount of difference between airports' compliance with this guidance. The best airports have detailed plans that quickly activate a central snow desk, snow removal equipment and crews, and accurate condition reporting. FAA should ensure that all airport operators which experience winter contamination meet federal criteria for removal of those contaminants.

Earlier, I made mention of the need for improved aircraft contaminated runway performance data. As professional airline pilots, we rely on data for a huge proportion of the things that we do in an airplane. Speeds, headings, altitudes, engine settings, even the number of passengers are all known with high accuracy. If the runway is dry, we know the airplane manufacturer has done flight tests to back up the takeoff and landing distances that are in our manuals, so we can be certain that the runway we are operating on is of sufficient length to ensure the safety of the operation. If, on the other hand, we are operating on a contaminated runway, the best information that we have about whether the runway is long enough is based on estimates. They may be very intelligently derived estimates, but they are estimates nonetheless.

Federal Aviation Regulations require manufacturers to determine a "demonstrated landing distance" during certification. This distance is based upon a dry, level, smooth hard surfaced runway in which maximum manual braking is used with no thrust reverser use or reverse thrust credit. There is no requirement to flight test on any runway conditions other than dry. Landing wet runway stopping distances required by Federal Regulations are only factored (i.e. "padded") dry runway values based on runway conditions existing at the time of dispatch. The factored distances are intended to account for varying factors such as approach speed, wind, touchdown point, and wet/slippery surfaces. There is no requirement to conduct actual wet or slippery surface aircraft runway testing to either validate the factored values or provide actual stopping distance data to the operators.

There are two aspects that must be considered for takeoff: the rejected takeoff and continuation following an engine failure. For the rejected takeoff, Federal Aviation Regulations require accelerate-stop distances to be defined. These distances are based on a dry, level, smooth, hard-surfaced runway in which maximum manual braking is used. Wet-runway accountability for the rejected takeoff, determined by calculation rather than flight test, was implemented for aircraft designed after 1998. Therefore, it affects very few aircraft flying today. Prior to 1998, accelerate-stop distances considered only dry runways. There is no requirement to account for contaminated runway conditions and its affect on aircraft braking.

The only circumstance for which thrust reverse *credit* is specifically allowed is in the "stop" phase of the rejected takeoff maneuver and only for wet conditions. However, thrust reverse is not actually used to demonstrate the maneuver during certification on dry runways.

Current regulations do not address consideration of reverse thrust credit for landings on contaminated runways. Therefore, it is typical for the aircraft manufacturer to empirically derive contaminated runway guidance material which compensates for the use of reverse thrust.

For the case of an engine failure during the takeoff roll in which continuation is the safest course of action, there is no requirement to assess the drag effects of contaminant displacement or impingement drag on the takeoff distance to clear obstacles.

Europe is ahead of the FAA when it comes to contaminated runway operations. Their rules require manufacturers to provide guidance material (typically empirically derived) to operators regarding contaminated runway operations. They also require the operator to ensure that approved performance data is in the AFM to account for the effects of contaminated runways on takeoffs and landings. Aircraft certificated under European rules are required to have guidance material for wet and contaminated runway operations. The same aircraft certificated under FAA rules are not required to account for contaminated runways.

Many operators and pilots are not provided with accurate information/data regarding weight penalties, speed corrections or distance corrections that should be used while conducting contaminated runway operations. In some cases, manufacturers develop "calculated" advisory information for contaminated runway operations. However, there is no flight test determination/validation of these particular numbers. In May 2006, the FAA proposed a new Operations Specification (OpSpec) to require all operators to reassess landing distance requirements based on actual runway conditions existing at the time of arrival. Implementation was expected by October 2006, but industry pressure forced the FAA to withdraw OpSpec C082. The contents of this OpSpec were moved to a voluntary Safety Alert for Operators (SAFO 06012). The SAFO provides runway distance multipliers as a function of braking action or contaminant type. However, it is unclear how the FAA determined these multipliers (i.e. have they been validated by flight test?). In addition, the SAFO still requires the use of pilot subjective assessments of braking action. ALPA has asked that the industry develop and provide more definitive guidance to flight crews to better enable them to assess and provide useful braking action reports.

Even if we had good data, there would still be a piece of the runway performance puzzle missing. That is, just how slippery is that runway that we are about to land on? Even if several flights land in a short time and each pilot makes a detailed report, pilot-issued braking action advisories are subjective and vary from pilot to pilot and aircraft to aircraft. There is little criteria or guidance material available to pilots for them to accurately and consistently make appropriate braking action advisories. In addition, braking action advisories require an aircraft to land and provide such a report to Air Traffic Control. What this may mean is that at some point under degraded runway conditions, a pilot may land in conditions that then are classified as unsafe.

Some airports have sophisticated equipment to actually measure the runway friction, or "slipperiness" of the surface. There are many runway friction measuring devices in use today. These devices currently provide highly variable readings under the same conditions. Interestingly, the measurements are considered unreliable on surfaces with more than 1mm of water or with more than 3mm of wet snow or slush or with more than 25.4 mm of dry snow. In some parts of the country, most airports are outside those boundaries for extended periods of time.

ICAO Annex 14 converts friction index/measurement to braking action but due to the unreliability of the measurements and the difficulty in equating braking action to all aircraft types, a questionable friction index/measurement relationship exists.

The Canadian Runway Friction Index (CRFI) is a positive step towards giving flightcrews the ability to better determine their stopping capability under some winter runway conditions but it has limitations as well. According to the Canadian Aeronautical Information Manual, CRFI is not provided when the runway is simply wet with no other type of contamination present, when there is a layer of slush on the runway surface with no other type of contamination, or when there's loose snow on the runway surface exceeding 2.5 cm in depth. Slush is a phenomenon that may be more prevalent in the lower 48 states than in the colder climate of Canada. CRFI is also not applicable for takeoff. CRFI is not, therefore, an ideal solution to the problem of providing meaningful runway friction information to flight crews.

There are several sources of Runway Surface Condition (RSC) information available to flightcrews: Automated Terminal Information Service (ATIS), ATC, Dispatch or Flight Service Stations, and other pilot reports. In some cases, in the absence of a current RSC, ATC will request a runway condition report from an arriving aircraft. The current Notice to Airman (NOTAM) system in use is effective and a valuable tool to airports, ATC and pilots for many types of information. However, it is not well suited for rapidly changing runway/weather conditions. For this reason, runway surface condition reports are frequently outdated, non-existent, and not reflexive of current conditions.

So what should the FAA and industry do to correct these problems? The first thing is to establish a requirement for manufacturers to determine, through flight test validation, aircraft takeoff (accelerate-stop and one-engine inoperative) distances and landing distances for wet, slippery, and contaminated runway conditions. If deemed appropriate for operators/pilots to take thrust reverser credit in landing situations on slippery/contaminated runways, ensure that the data being used is validated through manufacturer flight testing. That needs to include what flight crew procedures would need to be followed without requiring above average skills. In addition, thrust reverse credit should only be allowed on contaminated/slippery runways and only when other "mitigators" are in place in the event of thrust reverse failure or aircraft control problems (i.e. rudder blanking, or crosswinds) that might require the crew to discontinue the use of thrust reverse. Mitigators to be considered would include, but not be limited to, the presence of a standard Runway Safety Area or equivalent, prohibiting asymmetric thrust reverser deferrals, a defined minimum acceptable level of reverser reliability, consideration of the time delay needed for pilot deployment, and a regulated minimum runway distance safety margin.

To address the issue of measuring runway friction, we need research. Congress should require and fund industry research to develop accurate and reliable means to measure runway friction potential and to require manufacturers to relate these values to aircraft performance. In addition, if the data is to make any sense, there needs to be a requirement to develop guidance to pilots, air traffic controllers and airport personnel to facilitate reliable means for accurate runway surface condition reporting, such as contaminant type and depth and pilot braking action advisories and to relate these to aircraft performance

It will take a while to develop meaningful and sufficient flight test data. Until then, the industry should develop a universally applicable tool that is usable by the flightcrew to quickly and accurately determine whether they can safely operate on the available runway under the given runway conditions (dry, wet, slippery and/or contaminated).

Outsourced Maintenance Oversight

As the economic pressure on airlines has continued to mount, one way that many carriers have endeavored to cut costs is by reducing or eliminating the amount of maintenance that they perform themselves. Work is now done by a contractor that, in years past, was done by company employees. That certainly does not mean that the work cannot be as good as that performed by company personnel, but it introduces some additional issues that ALPA is concerned about and that we feel the FAA needs to be involved in managing.

History has shown us what the results of improper maintenance can be. NTSB investigations into several airline accidents, resulting in the loss of hundreds of lives, have revealed maintenance deficiencies as part of the chain of events that led to the accident. As with almost everything in aviation, there are multiple redundant checks and inspections in maintenance to make sure that everything is done properly. The key to that process is oversight of young mechanics by their more experienced supervisors, oversight of the maintenance process by the airline, and oversight of the entire process by the FAA.

When maintenance is outsourced, oversight can become more complex and difficult. A recent fatal airline accident investigated by the NTSB proved that statement – company maintenance was contracted to a vendor who then subcontracted to a company who then used yet another company to actually perform the work. Ironically, the actual work was being performed about a day's drive from FAA Headquarters, but organizationally, the work was so far removed from both the airline and the FAA that it was not being properly supervised. Our concern is that the more organizational distance that is placed between the maintenance being done and the people ultimately responsible for its correct completion, the more complicated the process of providing oversight becomes. The FAA must have both the mandate and the resources to ensure that it can fulfill its oversight role in the new economic environment of outsourced maintenance.

Neither the outsourcing nor the critical need for oversight stops at the Nation's borders. As the aviation industry has truly become global, so have the safety issues, outsourced maintenance among them. Some companies are now using offshore contractors for significant maintenance procedures. Many such maintenance facilities perform excellent work, are operated to high standards, and are in countries with Civil Aviation Authorities which provide excellent oversight. However, this is not universally true, so FAA should still be involved to ensure that a U.S. registered aircraft, carrying U.S. citizens and operating into and out of U.S. airports meets the highest standards of maintenance. FAA oversight of the airlines operating these aircraft is critical to that process and needs to be ensured.

Thank you, again for the opportunity to testify today. I would be pleased to address any questions that you may have.