

**Remarks by the Honorable Sean O'Keefe
NASA Administrator
Paper Industry Management Association
New Orleans
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Good morning. Thank you Ken (Ken Johnson) for that kind introduction.

I'm delighted to be back in my old stomping grounds of New Orleans, and for the opportunity to share some time with good friends such as Ken, and to meet a whole bunch of new friends from your wonderful association.

Now some of you might be wondering what NASA's Administrator can offer to your industry, which after all is involved in a somewhat different line of business than exploring the planets and stars?

The Paper Industry Management Association and NASA share a lot more in common than one might think.

In general, we share an uncompromising commitment to excellence in important endeavors that contribute to the strength of our nation.

We are also in markets that require a willingness to embrace change, to innovate, and to use new technologies in order to reach our objectives. I will have more to say on this later.

And to be certain, we are also involved in activities that have had their ups and downs and have both become stronger by learning how to deal with adversity.

NASA is now in its 46th year of pioneering the space frontier on behalf of the American public. We've been defined in that period as much as by how

we have responded to our tragedies as by our triumphs. In my tenure, we've seen both extremes.

The tragic loss of our Columbia astronauts last year seriously tested NASA's fortitude. But as President Bush rightly said, the men and women of NASA reacted to this enormous setback with focus, professionalism, and unbroken faith in the mission of this agency.

The President would not have committed our nation to a bold space exploration agenda if he did not have faith in NASA's ability to learn from and respond appropriately to last year's tragic circumstances. And that's exactly what we are doing.

During those dark days after the Columbia accident, it was critical that our people never got down on ourselves. Everyone pulled together, and went to work to make good on our commitment to

find the cause of the Columbia accident and fix the problems that led to this tragedy. These past 17 months our people have worked with incredible focus and dedication so that we can safely fly the Shuttle again, perhaps as early as next spring.

In moving forward, we decided we would stick to one overarching objective, and that is to implement the Columbia Accident Investigation Board's recommendations, and raise the safety bar even higher as we work to return to flight.

We view safety as the price of admission to being able to conduct our work on behalf of the American public.

Because we have set our objective--that safety bar-- very high, we are today in my judgment a stronger, safer and smarter organization.

One good take away from our experience is the value of aiming high, even when things seem to be at their worst. The capacity of dedicated people to rise to the occasion never ceases to astound. Even in the depth of the tragedy, this characteristic was in evidence.

In the early days after the Columbia tragedy, when we were working on our very first task of trying to understand what caused the accident, some of our NASA folks never thought they would become experts on southern pine forests in the process.

But that is exactly what happened to our people who went to the piney woods of east Texas and west Louisiana to help in the effort to recover important evidence from the Columbia.

When we set out to collect as much of the Columbia as we could to assure public safety and to

aid the accident investigation, experts told us that at best we could recover about fifteen percent of the vehicle in these thick woods. Amazingly, when the formal recovery effort was completed about 100 days after the accident, which included a careful air, ground and underwater search of an area about the size of Rhode Island—nearly 40 percent of the orbiter had been recovered, including several key parts from the left wing of Columbia and the critical onboard data recorder.

The recovery effort was characterized by unprecedented interagency and intergovernmental cooperation. In all, over 25,000 people representing 130 organizations helped out. Volunteers from federal, state and local government agencies, all coordinated by the U.S. Forest Service, participated in the recovery effort.

A year ago Kathy Sawyer of the Washington Post wrote a very interesting article about the recovery effort. In her piece she observed how the workers, “braved hazards such as poisonous snakes, scorpions, toad-strangling downpours and sucking mud as they trampled through piney woods and thickets mined with giant toxic nose-piercing thorns.”

Sounds rough, and I can assure you from first hand inspection trips I took that it was.

I now have a much greater appreciation for the kinds of landscapes that are so vital to the paper manufacturing industry.

Today, as the result of the Columbia recovery effort and our response to the Columbia Accident Investigation Board's recommendations we are making significant progress in our return to flight efforts.

And with President Bush's new vision for space exploration, we now have exciting long-term objectives to aim for in the years and decades ahead.

We are highly motivated to take on the new exploration challenge that President Bush has given us. The President has provided us with a new set of compelling, achievable and responsible goals for the space program that I hope all American's will rally around.

In this regard, I hope many of you had the opportunity to view the video in the outer hall that describes the President's space exploration vision and the steps NASA will take to implement it.

The fundamental goal of the President's vision is to advance American scientific, security, and economic interests through a robust space exploration program.

In support of this goal, NASA will:

- Conduct a sustained and affordable exploration of our solar system using human pioneers and robotic explorers.
- Complete the construction of the International Space Station by the end of the decade.
- Return human explorers to the Moon in the next decade in preparation for the exploration of Mars and beyond.
- And promote international and commercial cooperation.

In pursuing this vision on behalf of the American people, NASA will explore answers to fundamental questions of importance to science and society.

Doing so we will help develop revolutionary technologies and capabilities for the future, while maintaining good stewardship of taxpayer dollars.

But as with all great quests that are worth pursuing, this will not be easy. We are in the equivalency of the "age of sail" in space exploration. Indeed, I'm reminded of a remarkable book that David McCullough wrote about our nation's second President, John Adams. McCullough relayed how Adams lamented the fact that the pride of the American fleet, the USS Constellation lay at anchor in Boston Harbor for days and days at a time because the weather wouldn't permit it to sail.

In that time, Constellation was the symbol of American resolve to engage in global commerce and a vessel that would demonstrate we were a nation to be reckoned with.

In space exploration, we are in the equivalency of that time. Weather and other conditions must be perfectly right for us to proceed. For example, power generation, propulsion and human factors challenges

must be overcome for us to be able to explore space more extensively. In this quest, we aspire to the "Age of Steam."

We are quite confident, however, that NASA's efforts to achieve the "age of steam" in space exploration will spur technological developments leading to new products and services that tangibly improve the lives of people throughout the world.

Just as the Apollo program led to important advances in computing and electronics, the potential spin-off benefits from this broad based exploration program could be considerable.

Since that time, MRI's, cataract detection, and heart pumps are all examples of NASA technologies used to advance our exploration goals being applied to productive use in society.

We believe the technology development necessary to execute and implement the president's vision will accelerate advances in robotics, autonomous and fault tolerant systems, human-machine interface, materials, life support systems and novel applications of nanotechnology and micro devices.

Now Ken Johnson has told me that your industry is no stranger to the promise of nanotechnology and is involved in some very impressive innovations of your own. He's mentioned how pulp and papermakers have taken a journey into the depths of paper on a nanoparticle level, creating new composites that are transforming paper as we know it.

The ability to see the unseen is truly a gift for scientists today--aeronautical and paper scientists alike. But the capability to direct changes in the

course of a space vehicle directly, as we will do in two days when our Cassini spacecraft begins to orbit Saturn, or your ability to make adjustments in a sheet of paper on a nanoparticle level while it's being made, is amazing. We are both riders on an incredible technological wave.

I'm told that nano-technology developments in areas of fiber science, minerals and other additives are giving papermakers the means to put order and structure into the designs of paper sheets.

Being a curious person, over the years I have noticed really intriguing changes in common paper products. In reading Time Magazine, for example, I can see and feel that the pages are much thinner than in the past. One can surmise that postage costs, transport, and paper costs are lower for the publisher. Based on the visual pop of the photos and graphics--

very nice ones I might add on stories about our Mars Exploration Rovers--the magazine is a treat to read.

Ken also informs me that the composition of paper has changed dramatically, and that expensive wood fiber has been reduced in favor of engineered minerals. That is to say that modern paper is a composite material. Just as spacecraft are designed to be lightweight yet strong, bright minds in both of our fields have found a way to dramatically extend the march of progress.

Of course, new technologies are not developed in a vacuum. To succeed, both NASA and the Paper Industry Management Association, need to be able to adjust to changing circumstances in order to maximize our potential for success.

In our case, we recently received some very constructive advise from the President's Commission

on Implementation of U.S. Space Exploration Policy, which was chaired former Undersecretary of Defense and Air Force Secretary Pete Aldridge.

In its report, the Commission found "NASA needs to transform itself into a leaner, more focused agency" in order to achieve the objectives of the President's space exploration vision.

We are striving to do that. Last week we took some important steps to streamline the Agency and position it to better implement the vision.

Our intent is to be a friendlier Agency for entrepreneurs, innovators and technology developers. The success of Bert Rutan and his SpaceShip One should be commonplace. We should be very helpful in making this kind of technology available. But I envy Bert. He is a single investor. I have to answer to 535 members of Congress.

We also have a public responsibility to do everything we do with an utmost consideration for safety. Previously, in response to the Columbia Accident Investigation Board's findings, we created an independent Engineering and Safety Center. This Center is drawing upon our best engineering and scientific talent to take a no holds barred approach to analyzing and taking action on all safety aspects of our missions. And we are taking a number of other actions to ensure that enhanced safety is the ultimate result as we transform our storied Agency.

Of course change does not come easily, and the ongoing transformation at NASA has certainly prompted nervousness among many of our employees. It's an understandable part of human nature that folks become worried about a state of affairs that take them away from traditional, comfortable work patterns. But I also think our

people recognize that we must change in order to wire NASA for long-term success.

I suspect that many of your member companies are facing the same dynamic. As your teams strive to achieve the goal of thriving in a very challenging environment filled with skyrocketing costs for raw materials and a rising tide of email and electronic communications, you may also need to embrace positive but often unsettling change. Based on your record of innovation, I am quite confident that you are more than up to the task.

And as you all strive to be great organizations, I am reminded of my former colleague Paul O'Neil's trilogy of organization excellence. O'Neil has said that, "In all the systems that I've had anything to do with -- public, private, non-profits -- there are elements in common in all cases without regard to geography, without regard to language, without

regard to ethnicity or anything else, and it's about people. For me those three things are these: Everywhere in the world, every human being wants to be treated with dignity and respect every day -- not once in awhile or when it's convenient for someone else. The second thing you find universally true is that people want to make a contribution to what they do in their lives in order to give meaning to their lives. The third thing I think is universally true is that everyone else would like for someone else to notice that they did it. When those three levels are present, people have the potential of contributing in a way that is structured and organized and disciplined and fulfilling and they will reward the leadership by bringing things together in a way that will defy imagination." Those are good words to live by.

Now as all of us look forward to the challenges and opportunities we have ahead, whether they be in

sending human explorers to the planets, or in making paper products exemplary examples of high-tech innovation at its best, please also recall the words of the distinguished American jurist Oliver Wendell Holmes. "Greatness is not in where we stand, but in what direction we are moving. We must sail sometimes with the wind, and sometimes against it -- but sail we must, and not drift, nor lie at anchor."

I thank you very much for the opportunity to speak to you this morning, and you have my best wishes for continued success.