

February 27, 2013

The United States House of Representatives
Committee on Science, Space and Technology
Subcommittee on Space

Testimony of Elliot Holokauahi Pulham
Chief Executive Officer, the Space Foundation

Opening

Chairman Palazzo, Ranking Member Edwards, Members of the Subcommittee, and Subcommittee staff, thank you for your service to our nation, and thank you for the opportunity to offer testimony today. The Space Foundation is a 501(c) 3 non-profit, non-governmental organization and our mission is “to advance space-related endeavors to inspire, enable and propel humanity.” Implicit in this mission is our belief that the exploration, development, and use of space inspire our nation and the world, enables us to dare and dream greatly, and propels us confidently into the future.

On Dec. 4, 2012 the Space Foundation released its report on the future of NASA, entitled *PIONEERING: Sustaining U.S. Leadership in Space*. Today I’ll speak briefly on the origins and processes associated with PIONEERING, and our findings and recommendations. I’ll conclude by talking about the “connective tissue” between our report and the *Space Leadership Preservation Act of 2013*.

Origins

America's civil space enterprise has had to deal with many challenges over the decades, often technical, but even more often the super-heated challenges of politics and the mundane obstacles caused by public administration. NASA isn't the only organization to have to deal with these issues, but we feel NASA's very special nature has made these challenges more painful and difficult than perhaps they are for other federal agencies. NASA is, without a doubt, the highest profile and largest entity in America's civil space enterprise. All of us in this industry, and the members and staff of this subcommittee, share a passion for NASA and the amazing work done by the dedicated men and women who are part of the

American space exploration enterprise – whether they wear a NASA badge, or are part of the crucial industrial base that underpins everything NASA does. We want them to succeed. That's why we are all here today.

Over the decades, there have been many reports from many groups, commissions and committees that looked for ways to help the agency succeed in accomplishing its various missions. The Space Foundation found that many of these focused on fixing a single pressing problem or failure; on giving NASA a single, targeted destination to work towards; or asking NASA to commit itself to developing some sort of technology that would at some point in the future enable new capabilities for the nation.

All of which are interesting, and meritorious ideas. But, in our view, most of these reports and commissions arose at specific points in time, to address specific concerns of the day. In a larger sense, dissatisfaction over our nation's inability to deliver another "Apollo moment" has persisted for 40 years since Apollo 17 returned to Earth. When we contrast the almost visceral drive that we all have to see NASA succeed, with the reality of a space program that has retreated to the point where America's space agency can no longer even launch cargo or crew to the International Space Station, the Space Foundation concluded that there must be pervasive, systemic problems for NASA to have experienced all the challenges it has since the end of Apollo.

We believed we could discover and articulate something new and different to better inform the ongoing space policy dialogue, and to help put NASA on a glide slope toward greatness once again.

Process

The Space Foundation self-funded and self-directed our year-long study, serving no master except our mission to Inspire, Enable and Propel humanity. Thus, from the very beginning, no data was off limits, and our conclusions were not constricted or pre-ordained. We made it a point to be inclusive in our efforts. We reviewed and incorporated data from the many and varied reports and commissions - whether we agreed with them or not. Operating under a Chatham House Rules approach, we were able to have candid, productive, no-holds-barred discussions

with a broad and diverse community of respected space experts from across the U.S. space enterprise, and, indeed, around the world.

Our research included extensive literature review of space policy, public administration, political science, management, history and both governance and management philosophy.

The Space Foundation is fiercely committed to our independence, believing that our authority to speak on space issues must be rooted in knowledge, experience, genuine expertise and the autonomy to speak what we believe to be the truth. Therefore, no underwriters or interviewees were allowed to see the report prior to release. No one outside our report team was allowed to have influence over the content or conclusions of the report.

A Clear, Unambiguous Purpose

Our fundamental conclusion has been that the plethora of competing and sometimes conflicting missions that have crept into the agency's portfolio over the past four decades need to be sorted and rationalized against a single organizational purpose. Not a benefit, or an array of constituencies, or a destination -- but a single, clear purpose that can consistently and clearly guide decision-making about America's civil space program.

In short, what we prescribe is a "Management 101" overhaul that would place NASA on a strategic pathway no different than what any world-class organization would follow: establish a clear and unwavering purpose, establish the management structure to allow you to fiercely pursue that purpose, and put in place a resourcing plan that assures success.

The Space Foundation believes that first and foremost, NASA needs to embrace a singular, unambiguous purpose that leverages its core strengths and provides a clear direction for prioritizing tasks and assigning resources. We describe this purpose as "Pioneering." We define "Pioneering" as:

1. Being among those who first enter a region to open it for use and development by others; and

2. Being one of a group that builds and prepares infrastructure precursors, in advance of others.

What we're talking about is a solid, sustainable, repeatable process that stimulates jobs, technology and innovation, strengthens our industrial base, and projects soft power abroad while stimulating a culture at home that once again values science, technology, engineering and mathematics.

The Pioneering process can be broken into four steps designed to open up new places and new knowledge:

- **Access** - developing the ability to identify important destinations within our solar system, and to get to and from those destinations.
- **Exploration** - learning about those destinations in order to plan for subsequent missions.
- **Utilization** - turning theoretical and practical knowledge into technology and systems that enable continued, longer-term activity at the destinations.
- **Transition** - handing off the knowledge and capabilities NASA has developed to other government organizations, academia, or the private sector, for further long-term exploration, utilization, and, in the best sense of the word, exploitation.

Expanding the U.S. national civil space enterprise is a matter of expanding human reach and activity in space. This is not limited to supporting human spaceflight for its own sake, or supporting only government activities, but includes the many different means by which human reach is extended. Our report does not advocate for any particular space destination or settlement; rather, it is focused on expanding the human sphere of influence throughout our solar system.

***PIONEERING* Recommendations**

We see the recommendations we offer in *PIONEERING* as transformational, powerful and far-reaching. Key among our recommendations are:

- De-politicizing NASA by establishing a renewable term for the administrator.

- Establishing a formal short- and long-term planning and guidance framework for the agency.
- Deploying financing, appropriation and procurement tools found in other parts of government to permit NASA the flexibility it needs to succeed.
- Conducting a bottoms-up review of NASA infrastructure with an eye toward maximizing capability around the Pioneering Doctrine.
- Streamlining the Space Act to focus NASA on its pioneering purpose and eliminate the cornucopia of non-mission-essential responsibilities that have been heaped upon the agency over the years.

Our *PIONEERING* report is 70 pages long, and we've provided copies and individual briefings for committee members and staff. We're committed to supporting your efforts going forward.

Finally, a few words about PIONEERING in the context of the Space Leadership Preservation Act:

Similarities

Our report, and the proposed legislation, agrees that, due to continuously shifting direction to NASA leadership, programmatic changes have occurred so often that NASA is seldom able to see major initiatives through to completion. This turbulence causes frequent cancellation, redirection, and re-scoping of projects, leading to waste and the perception of incompetence or indecision. It leads to demoralization of a highly technical, highly motivated workforce.

- For example, borrowing from the precedent of the director of naval nuclear propulsion, we suggest a five-year renewable term for the NASA Administrator. We felt this was a good example because it is a position that reaches across government, demands significant management skills, and is a very technical position. Similarly, the SLPA of 2013 proposes a 6-year term for the NASA Administrator.

We also share the view that many NASA problems are compounded by the mechanics of the budgeting process. In our report we argue that many of the most effective mechanisms for addressing this issue already exist in the form of funding

mechanisms used elsewhere in government, for example the revolving fund used in the National Defense Sealift Fund. The SLPA of 2013 addresses this concern through the broader use of long-term contracting.

The two documents agree that Decadal Surveys are good ways to order priorities within disciplines and provide a model for arbitrating technical disputes without undue political influence. The Space Foundation specifically proposes that NASA employ a regular and consistent planning process to produce short-, medium-, and long-term plans. In particular, we recommend that the established oversight and appropriations activities that the Constitution requires of Congress can be supplemented by a detailed examination of NASA's plans every five years. The SLPA of 2013, in a similar fashion, proposes a quadrennial review, analogous to the process employed by the Department of Defense.

Finally, like the sponsors of the Space Leadership Act, we agree that there is no single, obvious, point solution, but that we, as a nation, need to have a clear recognition of NASA's purpose going forward.

Differences

While the Space Leadership Act seems to suggest that instability, caused by excessively political processes, is the principal barrier to an effective space program, *PIONEERING* takes the approach that this instability is related to a larger, underlying problem: the lack of a clear, singular purpose, upon which we all agree. Along these lines, the Space Leadership Act appears to presume that the purpose or role of NASA is known and understood -- a perspective not shared by our report, which argues that the lack of consensus about NASA's core purpose causes many of the problems the agency faces.

Conclusion

In conclusion, it is our desire at the Space Foundation to see a strong, vibrant NASA so current and future generations can take those next "giant leaps." It is our hope that *PIONEERING: Sustaining U.S. Leadership in Space* can help contribute to that future.

#