

**NASA HEADQUARTERS ORAL HISTORY PROJECT
EDITED ORAL HISTORY TRANSCRIPT**

JOHN F. HALL, JR.
INTERVIEWED BY SANDRA JOHNSON
WASHINGTON, DC – 4 AUGUST 2017

JOHNSON: Today is August 4, 2017. This interview with John Hall is being conducted for the NASA Headquarters Oral History Project. Mr. Hall is speaking with us again today by telephone from NASA Headquarters in Washington, DC. The interviewer is Sandra Johnson. I want to thank you again for joining us, we appreciate it.

I want to start by going back to our last interview, and talk a minute about one of the statements you made, I just wanted to follow up on that. We were talking about export control, and you mentioned that—and this is from your interview—“It wasn’t until the [President Barack H.] Obama administration that anyone got really serious about it.” Then they started that Export Control Reform Initiative.

HALL: That’s right, I think it was Presidential Decision Directive Number 3.

JOHNSON: It’s something that you had been working on or had been involved in a long time, but it’s interesting that no one had, as you put it, gotten serious about it. Why do you think that was? What was the holdup, what was the value that they didn’t see?

HALL: I think actually going back many, many administrations before then—I remember the first [President George H. W.] Bush administration had issued a presidential signing statement

when he vetoed the Export Administration Act Amendments or something like that. Or maybe it was the National Defense Authorization Act that had export control problems with it.

The [President William J. “Bill”] Clinton administration was also concerned about it, as was the second [President George W.] Bush administration. But it wasn’t until President Obama came in and issued the Export Control Reform Initiative, or decision directive, that really all of the components of the government—with something of a blessing from Congress, although a very limited one—came together.

I think it wasn’t because people didn’t care. People had been caring for years, for decades. But a lot of the caring I will say was more philosophical than it was practical or economically driven. By that time in the mid- to late-2000s we had lost so much share of the commercial satellite market, and our high-tech [technology] companies were really starting to suffer *vis-à-vis* their competitors in the international marketplace, in part because of the cumbersomeness associated with the U.S. export control laws and policies.

I don’t think it was unique to Obama that the idea was a good one, it’s just that the real catalyst for all of it hadn’t really crystallized until the mid to late 2000s. I will say this as taciturnly as I can. The leading U.S. manufacturers and high-tech manufacturers, high-tech industries in particular, aerospace industries, many of which lead our economy and our GDP [gross domestic product] by a not insignificant margin—if you take a look at who the number one U.S. exporter is, it would not surprise you that they have strong voices on both sides of Pennsylvania Avenue. People really got down to business and got serious about, “This is something we need to fix,” in a way that they hadn’t before.

JOHNSON: Did you work with them on that initiative as far as NASA was concerned? Or how was that done?

HALL: Yes. NASA was a part of the interagency community that was to implement the President's direction. We did not, to my recollection, participate in the drafting of it, although we were aware and we had participated in discussions surrounding its preparation. But we were not among the original drafters of it. We were much more among the agencies that were going to be implementing it and responding to it.

There were a number of things that came out of that. There were studies that had to be done and surveys that had to be taken. Part of our role in the implementation of the initiative was to give the government an understanding of the impact on our programs and on our contractors who support those programs, particularly when we were talking about things like lowering barriers to trade in things like spacecraft and satellite components, and giving our companies some relief in that regard.

One of our many roles in the export control reform effort was to be essentially a data provider, to share information with the regulatory community about the impact of proposed revisions to control lists as well as the impacts to not doing those things.

JOHNSON: I had asked you about the Vision for Space Exploration, and you had made the statement that that wasn't a typical policy such as the National Space Policy; National Space Transportation Policy; Commercial Remote Sensing Space Policy; the [Space-Based] Position, Navigation, and Timing Policy.

I wanted to go back and touch on those ones that you in your position would have worked on. You did also mention that you were the principal NASA guy for policy-development exercises. I want to talk about your position, and how NASA worked with the White House through the different presidents on these policies.

HALL: Without exception, each of the administrations in whose policy development and formulation I participated selected outstanding people at the National Security Council and the Office of Science and Technology Policy to lead these efforts, whether it was Clinton, Bush, Obama. They uniformly had good people.

Those exercises typically began with interagency discussions at the senior staff level where, first of all, we would ensure a common understanding of what the current policy was—which of course was a policy from the previous administration in almost all situations—and what differences we wanted to highlight, if any, and what consistent messages we wanted to highlight in our policies.

With the Bush administration, the National Space Policy of course had followed the attacks of September 11 [2001], and the focus on homeland and national security was of greater emphasis and importance than had previously been the case, including its reflection in the National Space Policy. The Bush administration Space Policy had a clear focus, both in form and in content, and a clear emphasis on national security and homeland security, and U.S. superiority in space from a national security perspective.

That was less of an emphasis in the Clinton policy and in the Obama policy, although it wasn't absent from either. If you take a look at the National Space Policies across the

administrations, you will see that they each have sectors of the policy that are focused on national security, civil and commercial space, and other things.

But in the Bush administration the policy had actually, as I said, in both form and content provided a much stronger emphasis on the national security and homeland security bases for U.S. space superiority. One of the things that changed, for example, from the Clinton policy was that national security got moved up to the very front. The national security sector discussion was moved from being the last to being the first. While you might say, “That’s just a matter of form”—it is, but when you have consistent policy statements across decades and then you move things around a little, the moving things around a little is not without some meaning.

Of course the language of the policies reflected their times, consistent with the priorities of the administration. In the Obama administration there was a much greater focus on commercial space and the need for the development of commercial space transportation systems, obviously continuing the commercial satellite capabilities and fostering greater capabilities there, much more of an emphasis on the capabilities and the promise of commercial space actors than in any of the previous policies.

But that’s because back in the Clinton and [President Ronald W.] Reagan eras you didn’t have that. You did not have an independent commercial space transportation system provider in the sense that we see today. Nowadays, you’ve got several.

JOHNSON: When you’re working with the NSC [National Security Council] and the OSTP [Office of Science and Technology Policy]—talk about that relationship and if there’s anything in particular working with them that you remember as far as any of those policies. Any problems that had to be overcome, any communication issues?

HALL: I probably should have begun the discussion with a general description of how the process works, or at least how it used to work.

JOHNSON: No guarantees now, I know.

HALL: Right. As I said, the NSC and OSTP would bring the concerned interagency community together. For something like the National Space Policy, that includes not just the normal suspects. It also includes folks from the U.S. Trade Representative for example. It includes people from the space data consumption community like the Department of the Interior and the U.S. Geological Survey, and folks that you might not necessarily right off the bat think of as having a clear equity in all parts of the space sector, but in fact they do.

You would bring the representatives from the agencies together and get an understanding of what the current policy was and places that we wanted to take it. The “Where do we want to take this, what changes do we want to make?” wasn’t entirely driven by the White House. It was shepherded by the White House, and certainly whatever policy resulted had to reflect the priorities of the administration. But every single agency, including us, regards the policy development activities as an opportunity to codify things that are important to them in national policy affecting them.

NASA of course is a significant voice in Space Policy type things, but so is the Department of Defense, and so is the Department of Energy, and so is the intelligence community. They don’t always all agree on what the most important things are, or even what some of the lesser important things are and how they should be communicated. It would be a

genuine error to say that there were severe interagency fights about these things, but there certainly were differing interagency viewpoints that had to be either coordinated and reflected with consent in the policy, or they were simply left out.

Leaving something out about which people cannot agree is an option. It has come back, I think, in the case of a couple of things in the space transportation area to prove that it's not a cost-free omission. But if the agencies can't agree and if the White House declines to make a call for one policy preference over another, then there are times when pronouncements of policy that are very important to some agencies will simply not be addressed. That certainly has happened.

One notable example is in the Space Transportation Policy. I want to make sure that I'm not divulging any nonpublic stuff here—I'll just say that in the Space Transportation Policy there were opportunities for a shared understanding about certain space transportation priorities that were not reflected in the policy.

They were not codified in the policy, and many years after we had had those discussions and had those agreements, it fell to those of us who participated in those discussions to try and translate what the policy was saying about something that was not clearly stated in there. And that's a problem; policies need to be clear. To the extent possible, they need to reflect the essentially unanimous position of the agencies of the government as led by the White House.

You asked if there were communications problems. Agencies disagree. We have different priorities, and that's okay. NOAA's—the National Oceanic and Atmospheric Administration's—priorities with regard to Earth remote sensing and who manages the programs for the spacecraft that they operate are different than some other agencies' wishes and priorities, and those things get ironed out in the policies.

Sometimes if an agency doesn't get something that's very, very important to it in the policy, its administrator will nonconcur in the policy, and we have to go back and we have to work out the differences.

JOHNSON: Were you a part of, or were you aware if the new presidential administration that came in was starting to work on any of these policies? Or do you know if they had even begun that process yet?

HALL: All I can say is not to my knowledge. Of course, we only had the reestablishment of the National Space Council [in June 2017].

I'm assuming that whatever policy effort to reflect the [President Donald J.] Trump administration's priorities in space—whether it's Space Policy, Space Transportation Policy, or other things like commercial remote sensing—some of which really, really do need attention and revision—they just need to be brought up to date, if nothing else, to reflect the realities of the country and the world.

But I have no information concerning any Space Policy development activity in the new administration. Again, I think the National Space Council would be shepherding that more so than just having the NSC or OSTP do it. But it remains to be seen. My successor will have an opportunity to give you an interview on that.

JOHNSON: Yes, that's true. I did think it was interesting that they did start that up again, that [National Space] Council. An interesting choice.

HALL: Yes, “back to the future” thing. Certainly depending on who you ask it was something good or it wasn’t something good. I won’t express a view there, because I’m still somewhat associated with the Agency. But I think that I’ll just say that there are a variety of views on the efficacy of a National Space Council.

JOHNSON: I thought it was interesting, too, this past April the Senator [R. E. “Ted” Cruz] from our state brought up the possibility of looking at the 50-year-old [Outer] Space Treaty to bring it up to date. When looking at the policy that you had worked on for the National Space Policy in 2010 under President Obama, one of the principles states: “It’s established in international law there shall be no national claims of sovereignty over outer space and any celestial bodies.” When I was reading about what Senator Cruz was bringing up, people were speculating that—and it’s all speculation at this point, I guess—but there are groups that want to have sovereignty over celestial bodies.

HALL: Sovereignty or property rights.

JOHNSON: Right, property rights so that they can mine and get the resources from it. I just thought it was interesting that that’s specifically in the Space Policy.

HALL: If you take a look at the preceding space policies, you’ll see that in there as well.

JOHNSON: Yes. It's almost like that wording would have to be changed quite a bit, if they really do go back and redo that treaty that's been in place for 50 years to keep the peaceful uses of outer space.

HALL: Yes, 50 years this year. But clearly the United States is not going to, by itself, be able to change the Outer Space Treaty. That principle regarding claims of sovereignty, which I believe appears in Article II of the Outer Space Treaty, is something about which the appetite for change among most nations—even most spacefaring nations—is not very large. There is not a great appetite for changing that.

That treaty was achieved at a time when the United States and the Soviet Union were the only two games in town. I just think that, for purposes of treaty change, that's not an easy process. It takes a long long time to make changes to treaties under the auspices of the UN. Nothing at the UN moves quickly. In fact, it's designed that way.

But yes, there certainly is an appetite in this country for certain protections for activities in space about which some countries have expressed questions regarding the utilization and exploitation of celestial resources, which of course is protected by the Outer Space Treaty. Countries are allowed to utilize and exploit celestial resources, but as to whether one can own them, some states have questioned that.

Some states have questioned whether it's such a good idea to do things like orbital debris removal, something that is referenced in the previous administration's Space Policy, that NASA and DARPA [Defense Advanced Research Projects Agency] will work on orbital debris mitigation and remediation. For some folks, having a capability to remove dead spacecraft from orbit raises security concerns, not surprisingly. Some might even view it as an act of war.

So there's lots of discussions about things that touch upon both the policies and the treaties. All I'll say about the [Outer Space] Treaty is it would be a long process. I'm not saying it couldn't happen. Lots of people think that it should. Certainly 50 years is a long time not to evolve. I just know from personal experience that nothing happens quickly at the UN.

JOHNSON: Right, and that may be a good thing.

HALL: It was designed for that.

JOHNSON: Yes, lots of discussion.

HALL: Designed to give folks and countries maximum opportunities for deliberation and consultation and peaceful settlement of disputes, whatever kind they may be.

JOHNSON: On the same lines of what we've been talking about, every time an administration changes, every four to eight years, the policies change. NASA has to readjust to make sure that they're doing what the President or the administration wants them to do. I know you left NASA, as far as your position there, when this administration came in, but it's interesting that presidents always want to put their own stamp on what NASA does. I guess other agencies feel that effect too, but I know NASA definitely does.

At the time of your retirement, NASA had around 73 spacecraft that were being operated by the Science Mission Directorate, two-thirds of which had international components. Being part of international affairs as you were, let's talk about the importance of those international

relationships, and how that's affected by our presidential administration changes, and how NASA weathers those changes in relation to our partners and working with other components, people that have interest in what we do in space.

HALL: First of all you've made a couple of very true statements. Each administration has historically wanted to have its own National Space Policy and associated space-related policies—Space Transportation Policy, Remote Sensing Policy, all those sorts of things—and that's fine. Why shouldn't they?

NASA is not a monolith. We're part of a dynamic U.S. government. Priorities and resources and goals have to evolve. It's expected when a new administration comes in that they would at some point want to have a new Space Policy. Some have taken a lot longer than others to get around to it, which is also fine.

With regard to the international participation and the impacts of changes in policy, let me first of all say yes, you're correct about the very large percentage, at least two-thirds, of our science missions have international participation in them. Been that way for a long time; it will continue to be that way. Space costs a lot of money, requires a lot of talent, and there are resources and talent available all across the globe for shared scientific and engineering objectives, so yes, cooperation is very important, well-recognized.

When the second Bush administration issued its National Space Policy, because of the focus, emphasis, and tone there was a cautious and sometimes surprised international reaction. All you have to do is take a look at the press from the various outreach efforts of the administration at the time. This policy was issued in August 2006.

I don't want to criticize my own government, that's not my purpose. But I think I can make an accurate statement that if you just read some of the press descriptions of the reception that that policy got, it demonstrated that, as I had told you, a clear new emphasis was being articulated in that policy. It did not meet without criticism is all I will say. I think maybe that's the best way to say it. So yes, the international community in general had some questions about it, and the administration spent an awful lot of time trying to answer those questions at the time.

With regard to our specific partners, I don't think even with that policy there was much in the way of "What are you doing?" kind of stuff. I think people understood that the priorities and resources of the United States were going to be adjusted to address important national security and homeland security challenges and goals. I think the international spacefaring community with whom we worked appreciated that.

However, changes in policy and in program emphasis and wholesale missions don't just happen because a new president comes in and has a new Space Policy. Sometimes they happen because Congress says "You're not going to do this particular program anymore," and they take away our money. You can count on all of your appendages situations in which that has happened. Sometimes those programs have significant international participation and have significant international contributions to them and investment by our partners. When those things happen, we do our best to articulate that the Office of Management and Budget has said or Congress has said, so "We're not going to be doing this," or "We're going to be changing direction in this way," or whatever.

We have done it to others, and others have done it to us. It's not because we're a bad partner or those partners who have to change their priorities are not good partners for us. We have the best partners. We have the very best international partners, and we're very fortunate to

have them, all of them. But priorities and resources change and evolve across governments, and you can only work with what you've got. If you don't have any more money for something, then you're not going to do a particular program, even though you've budgeted some stuff and spent some money for it.

If your funding source or your management leadership—the Congress, OMB [Office of Management and Budget], and the White House, respectively—tell you that you're not going to be doing something, or that you're going to be doing something different, why, then that's what you do.

JOHNSON: Let's go back, since we don't have a whole lot of time, and talk about some general questions, maybe not so specific, about your experiences with NASA. One of them we always like to ask, especially people that have been with NASA a long time and have been working at NASA Headquarters—the NASA Administrators, you worked with several different ones, starting with Dan [Daniel S.] Goldin.

If you want to just talk about the different Administrators you've worked with and their different styles of their leadership, and the different ways that they directed NASA and your interactions with them. Just in general your overall impression of the different Administrators.

HALL: Sure, yes. We've been very fortunate to have some very talented and respected leadership in this Agency. Even when we were between leaders, like when Jack [John R.] Dailey was the Acting [Associate Deputy] Administrator, and we also had—I forget the guy after.

JOHNSON: [William R.] Graham was an Acting, [Daniel R. "Dan"] Mulville was an Acting.

HALL: Yes, Dan Mulville. Even with the acting leadership. We've got great acting leadership right now in Robert [M. Lightfoot, Jr.]. We've been very fortunate to have some very good and well-respected folks. I'll say that my first experience with Sean O'Keefe was a very disarming one, in a very pleasant way. Administrator Goldin had a certain leadership style that was very professional and staid, and I wouldn't say it was gregarious.

My first interaction with Sean was about 7:00 at night. I was taking the elevator down to leave, and he was leaving too and he had a tuxedo on. He was going obviously to some event. I introduced myself to him and he said, "I'm Sean O'Keefe."

I said, "Yes I know, sir, I'm very pleased to meet you." I said something like, "You have a big event tonight."

He said, "No, I'm just going to park cars over at the Marriott [hotel]." It's the kind of self-effacing, friendly comment that told you the guy was a regular guy and somebody who didn't stand on status or anything like that. That was a real refreshing moment. Of course, Sean did a very good job through a very difficult time.

JOHNSON: Yes, definitely.

HALL: Then, of course, he had his own challenges [injured in airplane crash in 2010 in Alaska]. I was fortunate to see him at my previous boss's farewell about a year or so ago, and he looked very good. I worked reasonably closely with him, especially on policy stuff.

Worked a lot with Dr. [Michael D. “Mike”] Griffin, especially on export control stuff. Dr. Griffin really got it. He understood the importance of trying to get something done with regard to export control challenges. More than that, I remember sitting at a meeting with members of Congress and leaders from other agencies that we had here at NASA Headquarters. One of the topics of it was, “What can we do to help the U.S. space industry from an export control perspective and how could we be a good advocate for them?”

Dr. Griffin engaged in a fully-informed, articulate, and what I thought was persuasive soliloquy-cum-discussion with the rest of them that demonstrated an understanding of a very esoteric topic, which is export control. In fact, I guess it must have been obvious to him and others. As I was watching him—these guys are all around a table and I’m on the side of the room in a chair where the senior staff people sat, and he was looking at me when he was doing this. I guess my mouth was just like on the floor, jaw wide open.

He actually stopped what he was saying and he asked me, “Did I say something wrong?” I said, “No, I’m just amazed that you understand it so well.” He really did have a very—he was a brilliant guy. Say what you will about program choices, I found him to be a brilliant guy. Programs change under all these Administrators. They do the best they can with what they’re given, I genuinely believe. I think we’ve really had good folks.

Lastly, I’ll talk about Charlie [Charles F. Bolden, Jr.], just because he’s my favorite. We were so blessed to have Charlie, and I was blessed to be able to work with him so closely for so long. NASA is not like a lot of other agencies. In fact, it’s not like any other agency as far as I can tell, with regard to how flat our leadership is and how much access you have to the top people. I think this is true at the Centers as well.

In fact, I know it's true at least at some Centers where my colleagues were able to see the Center Director as needed, whenever needed. Here at Headquarters, it's no different. If you need to speak with somebody who's in charge of something that can do something to help you out with a mission or a problem, they're available, and you can easily find out where they live, because they're not that far from you.

Charlie was probably one of the most approachable Administrators. But more than that, he was so genuinely compassionate and painfully honest. Dr. Griffin was a similarly honest person and would be very clear with you about things. There was little ambiguity in dealing with Mike Griffin. You always had a good understanding of what he wanted and why he wanted it. He was always very good at explaining that.

Charlie was very similar in that respect. He just wasn't someone who would bullshit you. Again, very compassionate and genuinely loved, loves the Agency, in fact. He talks about how great NASA is, even now when he's out doing interviews and speaking engagements. He surrounded himself, like all of these guys do, with excellent people. Picking Robert to be his Associate Administrator when he needed one was a great move.

Robert Lightfoot is a very well-respected and extremely talented, again very honest person. All these guys, they all have science backgrounds. Maybe not Sean, but most of the other ones have all got science backgrounds, they're all in it for the knowledge. They're not in it for anything else. They're not trying to sell you a bill of goods.

While Charlie is surely my favorite and someone who was extremely modest, was not a high maintenance person at all—I don't know if you ever dealt with him. But extremely likable, easygoing person, and as I said very compassionate. Plenty smart, smart as a whip. His experience and background is phenomenal. Very well-respected.

But while Charlie may be my favorite, we were lucky to have all of them. By and large our Presidents have done well by their choice of NASA leadership, and NASA leaders have done very well by their presence and their people.

JOHNSON: Yes. We just hope it continues. It'll be interesting to see who gets picked next.

HALL: Maybe Robert, who knows?

JOHNSON: You never know. I thought maybe I would close out by asking you—and you don't have to give a long involved answer, obviously, because we don't have a lot of time—but throughout your career with NASA, what was your most challenging time?

HALL: Oh, boy. That is a really hard question.

JOHNSON: If that one is a little difficult, maybe turn it and say what are you most proud of? It may be the same thing, sometimes it is.

HALL: I guess the Export Control Program and its success is something I'm very proud of. While I was not the first leader of it, it only came into existence when I came to NASA. Bob [Robert] Tucker and I made it happen, and it grew to be—when I say grew, it doesn't mean expanded people as much as it expanded its influence and the ability to keep us out of trouble and to be good stewards of the nation's advanced technologies.

It's well respected by the interagency community, by the regulatory community. The Departments of State and Commerce and Defense recognize and applaud our success in the Export Control Program. I'm certainly proud of that.

I think probably some of the Space Policy work. There were a number of legal things that I thought were good achievements, contributions to the International Space Station Intergovernmental Agreement that we had talked about the last time and certain things like that. The duty-free entry regulation that we talked about the last time, that's a huge victory actually. I should probably list that as number one because ain't nobody else got that. It took a lot of work, but it has paid off for sure.

I'm trying to think what was most difficult. Most difficult day was leaving. There were lots and lots of difficult days, I'm not saying that there weren't, but the hardest day was the day I walked out of here.

JOHNSON: I can imagine if you love your job and you love the people you're working with and have a respect for them, it is difficult to walk away.

HALL: Yes. Didn't always love the job, especially because so much of it was sticking my foot on other people's necks. Trying to be a bottleneck myself.

But the people are unmatched, just from the very-top down. I think I said in my parting remarks at the farewell event that the folks at NASA are a taxpayer's wet dream. They earn their pay in the first 15 minutes of every day. It doesn't matter who they are, whether it's the Administrator or whether it's some administrative assistant or international program specialist or

some GS [General Schedule]-12 lawyer. They earn their salaries in the first 15 minutes of each day.

JOHNSON: That sounds like a nice place to end this too.

HALL: I will say thank you, and thank you for earning your salary in the first 15 minutes of your day. Although it's not the first 15 minutes of your day, it's more towards the latter half I guess by now.

JOHNSON: I appreciate that, and thank you for saying that. It's always nice to hear.

HALL: I hope that it's helpful.

JOHNSON: It is.

[End of interview]