NASA JOHNSON SPACE CENTER ORAL HISTORY PROJECT
COMMERCIAL CREW & CARGO PROGRAM OFFICE
ORAL HISTORY TRANSCRIPT

MICHAEL C. WHOLLEY
INTERVIEWED BY REBECCA HACKLER
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HACKLER: Today is March 19, 2013. This oral history interview is being conducted with Mike Wholley at NASA Headquarters in Washington, DC, for the Commercial Crew & Cargo Program Office History Project. The interviewer is Rebecca Hackler, assisted by Rebecca Wright. Retired Marine Brigadier General Michael Wholley is the General Counsel for NASA.

Thank you very much for your time this morning, and we'd like to begin by asking you to share a brief background of your career as a military and NASA attorney, and how you first became involved in the project to apply NASA's Other Transaction Authority [OTA] to the commercial cargo project.

WHOLLEY: By way of background, I come from Massachusetts. I grew up there, applied for an ROTC [Reserve Officers' Training Corps] scholarship, and got to Harvard [University, Cambridge, Massachusetts] on an ROTC scholarship. I always wanted to fly fighters. My favorite cousin growing up was a fighter pilot in the Korean War. He had his own little plane at the local airport and he would take me up. It's all I wanted to do—fly fighters, get out, go back to Massachusetts, get into politics.

I spent my first nine years in the U.S. Marine Corps flying [McDonnell Douglas F-4] Phantoms. The last three of those years, I was on exchange tour with the [British] Royal Air Force. They had just bought Phantoms and wanted an air combat instructor, so I spent three

years with them. Then, God love the Marine Corps [Arlington, Virginia], they told me I was coming back to fly a big desk at the Marine Corps Headquarters and I said, "No, I think I'm going to go to law school." I got a call that they would send me to law school, so they sent me to law school.

I ended up spending almost 31 years in the Marine Corps, and retired as the JAG [Judge Advocate General] of the Marine Corps, back in 1996. Because I was a scholarship baby and I really believed in education, I got out of the Marine Corps and decided I didn't want to practice law. I ran a charity raising money for the sons and daughters of Marines, particularly kids whose parents were killed or wounded on active duty, for post-secondary education scholarships. That meant junior college, college, beautician school, electrician school, whatever they wanted to go to. Most of these kids were the first in their family to go to college, because we were focused on the sons and daughters of our enlisted men. We kept it so that we were helping those who really needed an opportunity.

I did that for about eight years, and raising money is very difficult. There are a lot of very good charities, and people give money to people with good charities, so I was away from home a lot. It was very demanding. I had friends that worked at NASA, and they would say to me, "Aren't you a little tired of being on the road? Why don't you come and work for NASA?" So, in 2004, for a bunch of reasons, I made the decision that I was going to step away from the foundation. I'd done, I think, a really good job raising a lot of money. We went from less than $3 million to well over $30 million, and we were giving out a lot of scholarships every year.

I decided it was time to make a change, and fortunately there was a job open at NASA. It wasn't the job I'm in now. I was quite surprised when the General Counsel [Paul G. Pastorek], who I had talked with on several occasions, said to me that he was leaving, and that the then

Administrator Sean O'Keefe decided he wanted me to be the General Counsel. It was pretty stunning, since I hadn't practiced law in eight years. I was a volunteer General Counsel for a couple of organizations, so I kept my hand in it, I kept my license up. I came to NASA, hired by Sean O'Keefe. He left in February of 2005 to go to LSU [Louisiana State University, Baton Rouge], then Mike [Michael D.] Griffin came in [as NASA Administrator in April 2005].

There's actually a connection here. Mike came in and I guess it was about the first week or two when I was talking to him and he said, "Look, part of our charter is to facilitate the development of commercial space, so I'm going to dedicate $500 million to try and jumpstart commercial space. I need you to figure out a way that we can not have all the restrictions of government contracting and government accounting principles and everything else. We have this Other Transaction Authority. How can we do this so that we can have people who put skin in the game?" Those were his words, "I want the companies to put skin in the game. I want us to support them, but I don't want us to pay all the freight. They have to put skin in the game."

The best legal minds that I had here in that particular department, which was the procurement/contracting/Other Transaction Authority department, were my head of the Contracts [Contracts, Procurement and Acquisition Integrity Practice] Group, Sumara Thompson-King, and the Commercial [Commercial and Intellectual Property Law Practice] Group, which is Courtney Bailey Graham, as well as some other lawyers. Scott Barber and Karen [M.] Reilley—there were a number of extraordinarily talented people.

We noodled through this problem for the better part of six to eight months, of how we could structure this. We came up with the way that we could structure it where we would not be imposing requirements on the companies; we actually would be giving them milestones. The

milestones required them to invest their funds and to show that they had a business plan with the investors to carry them through, so that we wouldn't be carrying all the freight.

After we started doing that, the COTS [Commercial Orbital Transportation Services] program was born through what was then called Exploration Systems [Mission Directorate]. We put out Requests for Information, RFIs, and then over the course of the next six to eight months met with the companies, had financial people candle their bona fides, their business plans, and then they made presentations. I think we had somewhere in the neighborhood of 20 companies that initially responded. They ranged from a guy with a project in his garage to the Boeings [The Boeing Company] and the Lockheeds [Lockheed Martin].

Then of course there were the startups, and that was one of the things that Mike was focused on, to get some new players in. There were a couple that I should mention. One was Space Exploration Technologies [Corp.], SpaceX. One was Rocketplane Kistler, that had a kind of start-stop, start-stop history with NASA. Another one was SpaceDev [Inc.], a space development company.

I was one of the advisors to the selection board, and I remember the presentations. Remember, we only had $500 million. Lockheed and Boeing basically said, "We could do this, but it would be a lot more money than $500 million." On the other hand, SpaceX, Rocketplane Kistler, and SpaceDev came forward with programs and plans that looked like they might work, and would require the government investment but not the government paying for the whole thing. That worked pretty well, and initially SpaceX and Rocketplane Kistler were chosen and given milestones. As you probably know, at one point Rocketplane Kistler fell off the back of the piano when they couldn't raise the money. We would give them delays and we would give them extensions, and they just never quite got it done.

I have to share with you that because this was such a new way of doing things, we were concerned that the—we don't call them losers—unsuccessful proposers would say, "Wait a minute, wait a minute, wait a minute. This is a sham, you are buying goods and services for the government and the law requires that if you're buying goods and services, you need to use a procurement vehicle, a contract. You're using Space Act Agreements for things they weren't meant to do." We would say, "No, we're not buying goods and services. Our charter under our organic legislation, the Space Act, is to promote commercial space, and that's what we're doing."

This is why we have not set "requirements," because if we were to set requirements, then it would be the government buying and dictating the terms of something. We specifically didn't do that. We've been taken to the GAO [Government Accountability Office], because the GAO has authority to look at contract protests. The first time we were taken to the GAO, it was whether or not we were abusing Space Act Agreements, and these were really contracts. It was a very groundbreaking decision. GAO basically said, "No, their Other Transaction Authority, the way they're using it with milestones, not forcing requirements on the company, not focused on goods and services for the government, even though long-term the government may want to use these services, that's not what the stated purpose of COTS is." We prevailed, which was wonderful.

At some point past that, Rocketplane Kistler was having trouble raising their capital, and so they fell off the back of the piano. We had another opening, and Orbital Sciences Corporation eventually prevailed in that one. That's how we ended up with two providers for the Commercial Orbital Transportation System.

When COTS was originally conceived, there were four things we were looking for: unpressurized cargo up, pressurized cargo up, pressurized cargo down, and crew. COTS [Capabilities] A, B, C, and D. We were really focused on COTS A, B, and C because that was what we were looking at, at that time. Commercial crew was going to be sometime in the future. Other than the fact that we got challenged in GAO once, and then challenged again on the Commercial Resupply [Services] contract by PlanetSpace, who was an unsuccessful offeror, it's gone amazingly smoothly.

The proof is in the pudding. SpaceX has had a pretty darn good run so far, and Orbital [Sciences] is headquartered out of Dulles [Virginia], and they're going to be launching from MARS, the Mid-Atlantic Regional Spaceport. They're due I think sometime in April to test fire. Hopefully they'll be going up to the ISS [International Space Station] with some cargo soon, too.

The original purpose of COTS was to foster an industry to get America back in the launch business, and get NASA back into the space exploration business by being able to turn over the routine tasks—and I put "routine" in quotation marks—of bringing supplies up and back from the Space Station, and eventually bringing crew up and back to the Space Station, which is low-Earth orbit. Get that taken care of by a commercial entity, which would do two things. We were hoping it would be less expensive, and we were hoping that it would then free NASA up to concentrate on the things that only government can do, which is essentially space exploration and reaching beyond low-Earth orbit. So far, touch wood, it's working out.

I'm not a propeller head—I was a history and literature major as an undergraduate—but I've learned an awful lot while I'm here, and the one thing I've really learned is that in spite of the science fiction movies and everything else, getting to even low-Earth orbit is very, very difficult. Getting back is even more difficult.

Once a year we have a General Counsel's gathering and training session, continuing legal education session. We had a session at the time when SpaceX successfully made their first trip to the International Space Station. We had a number of people in the session, and I got up and said to everybody, "I hope you realize what a tremendous hand you had in this great move forward under this other transaction authority—just the way you noodled through it, didn't give up, sustained the challenges of GAO, and just kept working with our clients to help them get where they needed to be."

That's what our focus is. We're supposed to be force multipliers. We are supposed to be the folks who listen to our clients. We hear what their issues are, and we find a way around them. We find a way to help them get their mission done. That was the fun part of COTS.

HACKLER: When you were developing Space Act Agreements and looking into how to apply NASA's Other Transaction Authority, did you have any experience using that authority from your military background? Or was it completely new to you?

WHOLLEY: No. First of all, my military background, I had very little procurement experience. My Master's in law was in environmental and land use, and I really didn't have much procurement—put that down as less than .05 percent of my time as an attorney, up until that point, had been dealing with anything to do with procurement.

NASA has an extraordinarily talented staff of procurement attorneys. Amy [V. Xenofos] is one. Sumara is the queen of the procurement world, and she is extraordinarily bright. We had others, like Karen, Scott Barber—I hate to give names and leave someone out—Vince [Vincent

A.] Salgado defended our actions at the GAO, just a fabulous litigator. They're all still here and they're all very proud of what they were able to do, as hopefully the Agency is as well.

There have been times when certain factions within NASA want to have more control over what the commercial companies are doing, and we have to say, "Back off," because we prevailed in these challenges precisely because we said, "This is OTA, Other Transaction Authority. These are not contracts, we are not setting requirements on these folks. We're just giving them milestones. If they meet the milestones, we contribute payment and we set the next milestone." If we start to set requirements, then it starts to look like a contract and we could probably be hauled back into court or the GAO.

When this happens—and there are some pretty senior people who want to get more of their hands on how this is being done—I explain to them I'm not being wooden headed, but we can get tied up for two or three years in court trying to resolve these, and in the interim, the program's not moving forward. We can't have that happen. Although I can see their teeth clenching sometimes because they really do want to have more control, we've got to back off and keep these as OTAs.

That's different from the Commercial Resupply [Services] contracts that we have with Orbital and with SpaceX. Those are contracts, so we can set requirements. The interface between the commercial resupply contracts and the Commercial Orbital Transportation System, sometimes the lines get a little bit blurred. There's no doubt that because of the contract money, there's been some help in giving companies the financial resources to meet the COTS milestones.

HACKLER: About how many attorneys did you have altogether helping put this together? It sounds like there was quite a team.

WHOLLEY: There was. There were a couple of principal attorneys—Sumara was guiding, Scott Barber was guiding, Karen Reilley is just fantastic, Vince Salgado was basically the gunslinger—and then there was Amy, and then there were the folks down at Johnson [Space Center]. Who touched it? Probably in the neighborhood of 15 to 20. Who worked on it pretty intently? Probably three or four.

HACKLER: I was wondering if you could describe in a little more detail some of those GAO protests and how you defended the use of the Space Act Agreement, as opposed to a contract.

WHOLLEY: It basically came down to, "Did we have the authority to do what we were doing?" GAO has authority to handle protests on government contracts. The first question for GAO, the first issue we raised to them, was, "You don't have jurisdiction to decide this because this isn't a contract." Then we had to write our brief to convince them that we had the authority to do what we were doing under the Other Transaction Authority.

Here are all the reasons why it wasn't a contract. We weren't controlling. We weren't buying goods or services for the government. We were merely setting milestones, we weren't setting requirements. The companies were putting their own money in. Tell me a contract where the company's putting their own money in, I don't think there are any of those. We had all these reasons, and I thought we had a good argument. I was delighted to see GAO thought so as well, and they basically said, "We don't have jurisdiction over this because it's not a contract."

HACKLER: In addition to GAO and federal offices, the commercial companies were obviously a major player. How did you cooperate with them to make the Space Act Agreement friendly to their terms so that they would be willing to participate in this new endeavor?

WHOLLEY: I think people who are forward looking, and I truly believe this, can see a couple of things. If you look backwards, you can say we've lived off the Apollo era for the last 50 years, and we've reached the knee of the curve. We have to make a decision. Having reached the knee of the curve, do we start a gradual decline? Or do we reach the knee of the curve and say, "Okay, there can be a space economy."

There should be a space economy. That will be a booming business in the future, for any one of a number of reasons, whether it's medicine, manufacturing, capturing minerals that are out there, asteroids that are out there. For any one of a number of reasons, you have to have some belief. I joke with people sometimes that in the 1800s the big thing for wealthy people to do was have racehorses. Then, at the turn of the 20th century, the big things were racing yachts. The big thing in the '50s probably were polo ponies.

The big thing for really wealthy people for the last 20 years has been space. Some of these folks are visionary. You get an Elon Musk [SpaceX founder and CEO (Chief Executive Officer)] or you get a [David W.] Thompson [Orbital founder and CEO], or you get a Jeff [Jeffrey P.] Bezos [Amazon.com and Blue Origin founder]. People like that, I think they want to be part of something that will make a difference, and they do have vision.

A lot of folks at NASA, Bill [William H.] Gerstenmaier [NASA Associate Administrator for Human Exploration and Operations] and his whole crew, these folks I think can see that we

can't stay on the knee of the curve. We have got to step up and start going to the next level because that's what America does. Technologically, that's what we have to do. I tell folks I don't want to worry about whether China and India are going to be outsourcing jobs to my grandchildren or not. I want us to be still in the number one position, and we need to do that by doing what America does best, which is innovate and inspire people to take risks with their capital.

That's the biggest difference, I think, between us and Europe and other nations. We have citizens who are willing to take risks with their capital. They just have to be encouraged, whether it's through tax programs that give them, quote, "subsidies," or whether it's through an organization like NASA saying, "Hey, part of our job is to help you innovate. We're not going to tell you exactly how to do it. We're going to tell you pretty much where we think we need to end up, and we might be an anchor tenant some day in the future, but that's not what we're going to talk about now. What we're going to talk about now is how can we help you achieve your vision of a viable commercial space industry?" That's what we were doing with the OTA.

I have to share with you, as a sort of sideline, do you know where our Other Transaction Authority comes from? The guy who wrote the [National Aeronautics and] Space Act, who was just incredible, was a very young guy. This was back in 1957, '58. [Paul G.] Dembling. I had the opportunity a couple of times to talk to him, and he told a story which I'm sure is true. He was a young attorney and he'd only been practicing for a few years. The Russians had launched Sputnik [in 1957], and there was panic in America. We did have a military space agency, but President [Dwight D.] Eisenhower said, "I need a civil space agency."

Mr. Dembling was tasked with writing the Space Act, and he sat down and did a lot of research and he wrote it. He told me, "I did the best job I could. I read everything, but I knew in

the final analysis there might have been something I missed. So I sat down and I said, 'Well, how can I cover that?' I can cover that by saying, 'And NASA can do any other agreement, arrangement, whatever it needs to do to fulfill its mission.'" That became the Other Transaction Authority. You know how Sherwin-Williams [Company] paint covers the world? He basically said, "If I've forgotten something, use this."

HACKLER: That's a really interesting part of how that was put together.

WHOLLEY: God bless him, God rest his soul. He was fascinating to talk to. He said, "I sat there, and I thought I probably missed something. Now, what can I put in that will let them do whatever they need to do?" Back then, in '58, the whole nation was roiled. It was still the Cold War, the Russians had a Sputnik, we could hear it, beep-beep-beeping. Those who were alive at that time can remember being taught to get under our little school desks and hunker down, like that was going to protect you from an atomic weapon. In any event, that was the climate of fear in the country, so getting a civil space agency stood up and running was very important. Paul came up with the Other Transaction Authority stuff. Who knew, right? Who knew?

HACKLER: You talked about the government's role in encouraging innovation and industry, and not every company that starts up is lucky enough to succeed. That was the case with RpK [Rocketplane Kistler], as you mentioned. I was wondering if you could talk a little bit more in detail about their termination. What kind of discussions took place at Headquarters?

WHOLLEY: That would have been on the program level. Because these weren't contracts, they were just milestones and agreements, if they failed to meet a milestone it was over. It was a pretty straightforward process. We pay you for milestones, we're going to give you an extension to try to meet that milestone. Their biggest problem was they couldn't raise the capital. SpaceDev has now morphed into Sierra Nevada [Corporation, acquired SpaceDev in 2008].

Frankly, as I sat in on all the presentations, I thought SpaceDev, the first time I heard it, was really exciting. A variant of the Dream Chaser [spaceplane based on the NASA HL-20] stuck on top of a rocket, and Mark [N.] Sirangelo was a very, very good presenter. I sat there pretty impressed. I was impressed by SpaceX and I was impressed by SpaceDev, and RpK had a program with some experience. It truly did range from the guys who were working on something in their garage to the Lockheeds, but the real innovators—the SpaceX, the SpaceDev, the RpKs—we gave them a chance to succeed.

Mike Griffin dangled $485 million. Part of the problem was the big companies said, "We can do it but we need all that money." He said, "Wait a minute, that's not what I'm trying to do. I'm trying to foster an industry, and that means I need to have two or three that I can support through this. I can't give all the money to one that's already doing this by and large."

Let's just say one could have thought that there was an assumption on the part of the big players that, "We know how to do this, and these startups, they're not going to be players." But they were players and they had solid plans. We had a venture capitalist who was candling these things. We had a lot of help. The presentations were excellent, and I considered it one of the highlights of my time here, to sit in on that and listen to what the future was going to be.

HACKLER: Did you work with Alan Marty, or did you have other venture capitalists involved?

WHOLLEY: The guy I'm thinking of begins with a V.

WRIGHT: There's a Valin [B.] Thorn, but he wasn't a venture capitalist. He was a part of the COTS team [Commercial Crew and Cargo Deputy Program Manager].

WHOLLEY: Valin Thorn, yes. He candled the business plans for us. He did a good job. They all did. They were enthusiastic about it, and the companies were enthusiastic. The briefs were fabulous. You can say sometimes, "My slide deck is always going to look better than your actual rocket," but the bottom line is these folks had put a lot of effort into it. It was just great to see that we were able to pull this off and help some companies what we're now seeing, which is viable transportation systems for cargo at least, and I don't think crew's going to be that far behind.

HACKLER: After RpK's termination, were there any lessons learned from that that you applied to the next round to be able to help companies develop their technologies?

WHOLLEY: I think the program people would be better able to answer that. In terms of the legal framework, we had the legal framework. In terms of the practicalities of operating and how you select and how you set up the milestones and stuff, that's more on the programmatic side.

HACKLER: The Space Act Agreements didn't have a lot of changes?

WHOLLEY: No, it was well begun as first done. We spent a lot of time setting it up the current way, so that there wasn't a whole lot of noodling to do with the process. Some of the things that were difficult—because we were going to be giving $500 million to these folks, there were real concerns about what's going to happen to the intellectual property, what are going to be the government's march-in rights?

If we've given someone $180 million and they're bending metal and they have something and it's almost viable, but they just go belly up, what is the government going to get? Are we going to have march-in rights to take this over and try to find someone who can bring it to the next level and help us make the milestone? Courtney Graham and Sumara, they worked those issues, and it was pretty impressive—the patent and intellectual property people, the procurement people.

This whole time, as they laid this out, they had to make sure that they did not make this look like a contract because it wasn't. We knew that we could get tied up in protests if we didn't do it right. That was the real motivator for getting it right. That, and the fact that this was groundbreaking, exciting work for the folks in procurement and intellectual property here in NASA.

Candidly, other than being a huge cheerleader for this, noodling through some of the practical stuff, the real intellectual horsepower was the procurement and the intellectual property people. They're the ones who put it together. Couldn't have been prouder. They won the Group Legal Award for the year, and deservedly so.

HACKLER: In fiscal year 2011, the COTS budget was augmented. Were you aware of how that was enacted, or how the milestones were executed?

WHOLLEY: In 2009, there was some ARRA money, American Recovery [and Reinvestment] Act [stimulus] money. I think it was in the order of $50 million, and the next year, there was some more money. At the same time we were starting to move towards CCDev, Commercial Crew Development, because we needed it. We did the same kind of set up again, Space Act Agreements with milestones.

This is again where it became very challenging because a lot of internal people said, "We don't mind you flying t-shirts and water up without us seeing how this is done, but we want to be there every step of the way on these things to watch how they're putting this [crew development] together." I said, "You can't do that under the Space Act agreement."

I get where they're coming from. The ASAP [Aerospace Safety Advisory Panel], Joe [Joseph W.] Dyer, a friend of long standing—I don't have old friends, I just have friends of long standing—was a naval aviator as well. He said to me, "The real issue, Mike, is when do we grade their homework? If we grade it after they've finished the test and handed it in, and there's no way we can change it, that's not good." We are now working again to try and Solomonically find a way forward. That's what the [Certification] Products Contract [awarded in December 2012] is about.

Because it's a contract, we can pay for data and insight, but that's separate from Commercial Crew Development, which is also separate from CCiCap [Commercial Crew integrated Capability], but these are all subtly interrelated. At the same time we have to walk that thin line to make sure that the unsuccessful offerors don't say, "Time out, this is all just a ruse to have a government contract." That's not what it is. It's one of NASA's organic

legislative mandates to help facilitate commercial space. If, at the end of facilitating commercial space, there's something in it for NASA, okay, but that's a byproduct.

HACKLER: As you gain more experience using Space Act Agreements, how has their use in NASA evolved over time? How do you see them being applied in the future, to other programs, for the same kind of development?

WHOLLEY: I think this was groundbreaking because this is the first time, to my knowledge, that we had funded Space Act Agreements. Courtney's got the best presentation for this. We have reimbursable and nonreimbursable [Space Act Agreements]. Reimbursable was the company got something out of it, we got something out of it, and we sort of cross-paid. Unfunded Space Act agreements, we didn't pay anything. We might let them work with us and we got some intellectual property rights, or some ability to use what they developed.

This was a funded Space Act Agreement, and this is what bothered some of our stakeholders. We were giving the people's money to basically companies that had a dream, and what was the government getting in return? For our stakeholders who didn't like that—and there's still a number of them, I might add—that's a very difficult question.

There are folks up on the [Capitol] Hill who wanted us to immediately go to contracts, but the problem with going to a contract is we don't have the money, number one. Number two, we don't have all the requirements. Writing all the requirements that we want in the contract would be extraordinarily expensive, and companies have a lot of change orders. As soon as you say, "Now that I see it, I really need it this way," they go, "Oh, I can do that, open your wallet. Give me the paper, and we'll start putting zeros after it."

By doing it with Space Act Agreements to help them develop the commercial space industry—on the one hand, it has been much more economical. On another hand, it's been a blessing because we don't have the money. You can't sign a contract if you don't have the money set aside to pay it and its termination costs. We don't have it. We don't have a budget that big. So, fiscal reasons compelled us to do Space Act Agreements as we moved forward. There are real fiscal reasons why we just can't do it.

We're trying to keep competition alive. Could we have picked a Boeing or a Lockheed? I suppose. Boeing and Lockheed ran [Space] Shuttles and Atlas Vs [rockets]. Yes, we could have done that, but is that going to develop a commercial space industry? Or is it just going to be the same folks, the same guy always seems to win the contest? We really did want to encourage innovation, and the Space Act was the way to do that, the Space Act Agreements. Now that we've set the precedent for funded Space Act Agreements, going forward, there may well be in the future times where we say, "We need this. It's in our mandate to do it because it fosters commercial space, it fosters American technological advancement, but we just need to have innovators do this, so let's do some funded Space Act Agreements."

I think the space technology folks are doing it with grants now. There are grants, cooperative agreements—there are things other than contracts. The funny part is, because Space Act Agreements were getting all the play—there's an old expression, when the only tool you have is a hammer, every problem looks like a nail. Our clients come to us and say, "I want to do this. I need a Space Act Agreement." No, tell us what you want to do and let us find the best vehicle to do it. It may be a cooperative agreement, it may be a grant, it may be a procurement contract, but don't limit yourself to Space Act Agreements.

This is something you want to talk Courtney about because she's got oversight of it. We have a very, very extensive Space Act Agreement Guide that goes into how to do it, why to do it, what the requirements are, in terms of when you can and cannot use it. That's her group that does it. There's a lot of interface between the commercial law group and the procurement group. They work very closely together to make sure that we're not trying to do a Space Act Agreement or cooperative agreement which should have been done with a contract, and vice versa.

HACKLER: I'd like to ask Rebecca Wright if she has any questions she'd like to add.

WRIGHT: I have a few. In those first discussions with Mike Griffin, why do you think that he was so propelled to move forward and push this as part of his Administration?

WHOLLEY: First of all, he's an innovator, and he is a very forward thinker. He's been around this business. I got to really know and appreciate Mike for not only his brilliant mind, but the dedicated public servant that he is. He took a huge pay cut to come here and be Administrator, but he did it because he truly believed that it was the right thing to do for his country. He noodled through how he thought it should be done—incentive payments, where the government doesn't own the intellectual property—but at the same time he recognized that unless we came up with a scheme that our stakeholders on the Hill would say, "Yes, we understand you've got to develop it in such a way. You have $500 million of taxpayer money, you better use it correctly."

That was the real challenge. He knew where he wanted to be, he just needed us to help design the pathway to get there that would keep everybody relatively happy. Again, there are unhappy people at NASA because they don't have what they consider to be the requisite insight.

There are unhappy people up on the Hill because they don't think that the government's getting what it's paying for.

To be honest with you, in the grand scheme of things and how this can end up helping our country, this is a pittance, a mere pittance. People look at our budget and they can't believe how little it is, and then they can't believe we're spending it in space. I think they believe we used to fly up to low-Earth orbit, open the Shuttle [payload] bay doors, and let the money blow around. We spend it on Earth. We spend it developing the technology, and impacting students, trying to inspire them to see the future that they can have.

When I got Griffin's name as one of the chief people, I did what I always do, as much research as I could do into him. I read all his speeches, read all his testimony, read about his background. I called my folks together, and I said, "When he comes in here, things are going to change because he is very focused on commercial space, and we're not going to be doing things the same way we used to do them. I don't know quite what he's going to want, but I know it's not going to be the same old thing."

Sure enough, half a billion dollars. He's saying, "Go figure out how to do this." We just provide the framework. It's the real inspirational thinkers and the great NASA team, Alan [J.] Lindenmoyer [Commercial Crew and Cargo Program Manager] and all those folks down there at JSC who have been overseeing this and helping to establish the milestones, and helping the companies move forward and giving them as much help as we can. We want these folks to succeed, we do not want them to fail.

Some people say, "Wow, they had milestones and they didn't make them." I say, "What would you have us do?" Just say, "Okay, you're done?" What will the next person we try to incentivize say? "No thanks, because halfway across the river you're going to bail out on me

just because I'm struggling a bit." You can't do that. That's where we are. I love working here and working issues like this.

I truly do believe that, as I've said to folks, I'm going to be out at Vandenberg [Air Force Base, California] the first time [SpaceX] launch the Falcon 9 Heavy [rocket]. May not be as close as some people will want to be, but I do want to see it launch. I hope I'm around to see the [NASA] SLS [Space Launch System] launch. I'm going to go down and see the [Orion] EFT [Exploration Flight Test] 1 go up. This is the future, and I feel blessed that the folks I work with have had a chance to contribute to it in a meaningful way.

WRIGHT: In the Vision for Space Exploration that Mr. O'Keefe was very involved in—the last line of the commission report [President's Commission on Implementation of United States Space Exploration Policy] that was headed by [Edward C.] "Pete" Aldridge, said in order to make this work, there had to be a lot of shifting in the [NASA] culture. Can you share with us if you had people who wanted to attempt to influence how you put this together in a way that it wouldn't work? Did you have people advocating setting it up to fail, to keep the culture as it was?

WHOLLEY: I never got the impression they were setting it up to fail. I got the impression that they saw that their role in it wouldn't be what they wanted it to be, where NASA had quality review boards, and engineers checking engineers checking engineers checking engineers, and program managers controlling every nickel and dime and being in charge. "This is letting loose some of the stuff that only we at NASA can do!"

There were and are, as you well know, huge skeptics. There's a feeling that, "I'll never sign off on putting an astronaut that I can't honestly say has been done exactly the way it should have been done, and I can't do that unless I'm watching them screw in every screw and bolt every bolt." NASA's fantastic, but have you been able to tour the facilities of any of these other companies?

HACKLER: We did visit SpaceX in Hawthorne.

WHOLLEY: Have you been down to their facility either out at Vandenberg or down at [NASA] Kennedy Space Center [Florida]?

HACKLER: No, not yet.

WHOLLEY: You figure out, it comes as no surprise to me in my advanced age, that there are a lot of people out there with really, really good ideas, and you don't have to do things that way because we've always done them that way. It really is innovation. There are only three sovereign nations that have managed to put a man in orbit, and one commercial company has managed to send a rocket ship up, orbit the earth, and recover it. That's pretty phenomenal.

WRIGHT: You made the comment that GAO doesn't have jurisdiction because these were not contracts. Who does?

WHOLLEY: Interesting you should ask that because there are people on the Hill that don't like the fact that we're using Space Act Agreements and want us to move to contracts. First part of the answer—we have an ombudsman here at Headquarters who will intervene on behalf of companies that feel they haven't been treated properly during some of the processes. He's had to do that in one instance, with ATK [Alliant Techsystems, Inc.].

There are a number of folks on the Hill—I hope this doesn't come to pass—who are concerned that there doesn't seem to be any oversight of Space Act Agreements, and so they've asked for every Space Act Agreement that's been signed in the last ten years. There's a difference between what we used to do, which was reimbursable Space Act Agreements or nonreimbursable Space Act Agreements, and the innovative approach for this, which is a funded Space Act Agreement. There's been some talk at the staff level about, "We're going to have to put legislation in to maybe give GAO oversight over this." I'm thinking, "Please don't." The law of unintended consequences is sure to rear its ugly head. Please don't. We're doing what we need to do just fine now, but I don't know what the future is going to hold.

I think if we were committing process foul after process foul, they'd be justified in saying, "Wait a minute, where are your overseers? In order to exercise oversight, we have to have somebody looking at what you're doing." You can tie us up in federal court, as well. You can try and craft an argument that you have a claim against the government for your bid costs. There are a number of ways we can be challenged. So far, because we frankly have done this very, very cautiously—it's been cautious innovation on the legal front. We didn't take a step unless we were pretty sure that we could defend everything we were doing.

WRIGHT: You mentioned you were an advisor to the selection committee, and also that part of what you've learned is a good desire to foster startup companies, but Orbital [Sciences] didn't seem to fall into that category.

WHOLLEY: Right, yes. In terms of crew, it certainly would be new for them. They've been launching payloads, but they haven't been launching crew. Nobody's been launching crew except NASA through Boeing and Lockheed, basically.

WRIGHT: Do you feel like there was more of a decision made on the technical expertise compared to their business plan expertise?

WHOLLEY: It was a combination of ingredients. We've seen guys that seemed to have very interesting and probably workable technical plans, but there was no way that they had the financial backing to do it. If we selected them, we'd have been throwing money at something that didn't have sufficient backing to make it viable.

I do remember being impressed by Mark Sirangelo and SpaceDev, by Elon Musk and SpaceX, by Rocketplane Kistler—this was the first round, back in 2006—being impressed at both the business case and having the impression that the big companies who proposed basically said, "Yes, we can do it, but we need all the money you've got and then some."

WRIGHT: Did you try not to chuckle?

WHOLLEY: Yes, in a sense. If you keep focused on what we're really trying to do, get competition, get innovation, get an industry built, it takes more than one giant to do that. It takes a leap of faith, but faith based on empirical evidence that these folks know what they're doing and they have the backing. We're just going to be providing sufficient help to help them get done what we think they can do. I don't know how else to answer it. I don't think it was, "Hey, we've only got $485 million to give out, let's not give it to one big company."

I think if they had walked in with an innovative solution—we focused on COTS A, B, and C. The only one, at that point, that was even proposing COTS D that was an innovator was SpaceX. He [Musk] had this vision. I used to say that vision without resources is hallucination. A lot of the folks that walked in there had vision, but they didn't have the resources. He seemed to have both. Sirangelo had both. Rocketplane Kistler, we thought, because they were to a great extent established and they had a sugar daddy [investor] who thought they would work—they had a good approach, but that didn't work out.

Here's something interesting. If we'd had a contract with them, we'd have had to terminate for convenience. Then we'd have had termination liability, we would have had money going—it would have been just a disaster. But because these aren't contracts, we can make a decision. If you don't meet a milestone, we can give you an extension, we can give you another extension. If we think you're not making progress, we can say adios. This was a pretty good legal plan we put together.

WRIGHT: My last question is about RpK, since you stopped on that. I was reading that they felt they would have been able to get other investors if NASA could give some kind of commitment that they were going to buy the services.

WHOLLEY: If we gave a commitment that we were going to buy the services, what did we just turn it into? You can't do that. They knew we were going to be buying commercial services at some point, but we couldn't say we were going to be buying them. They knew that at some point NASA's plan was to turn over supplying the [International] Space Station, initially for cargo and then for crew, to the commercial industry, but we certainly couldn't say to RpK, "You're going to be our choice." First of all, the Competition in Contracting Act [of 1984] wouldn't allow that, and that would be a contract. There were lots of reasons. They can grouse all they want. They had their chance, and for any one of the number of reasons they didn't get it together.

WRIGHT: I did think of one more because you mentioned it—again, when Mike Griffin came in and you talked about it, did you feel that the primary reason was to foster this commercial private sector for space industry, or was this a primary way to resupply the ISS?

WHOLLEY: When Mike Griffin first came in, candidly, my impression was—I never asked him directly, but there probably were people who did—he would have shut down the [International] Space Station in a New York minute to get us back into the exploration business. After traveling overseas and talking to some of our allies, you may remember that the number of Station missions were cut way back. I think we were going to have 40 or 45 launches, it got cut back to 28, and the question was, "Can we finish the construction of the [International] Space Station with that number of missions?"

God love Gerst [Gerstenmaier] and his folks, and all the folks down at JSC. These guys noodled their way through and got it, and even got the spares up there on the last [Shuttle] flight. It was pretty amazing, really. I never said to him, "Mike, do you think this is a huge rat hole we're just throwing money down?" Mike came to realize the value of the Station, but his focus has always been—when you read Mike's speeches and when you talk to him, on the macro level—the survival of the human race. On the intermediate range, the exploitation of space for its resources. That doesn't mean going back and forth to the [International] Space Station.

I think it was about a year and a half ago, in a speech he gave in South Africa at the IAC [International Astronautical Conference], he talked about the business plan for setting up a Moon base. He said, "What governments should do is say to these companies, 'Okay, we're going to need water, we're going to need power. You guys deliver it and we promise we'll pay for it, and we're going to set up a moon base and stuff as stepping stone to further out.'"

Mike was about exploration, not about the ISS. He came to appreciate what the ISS offered, in terms of a laboratory to look at all the human factors involved that we're going to need to solve in space exploration. He'd probably rather be doing it on a Moon base, but that's not in the cards with the budget that we have. I think he was focused on a grander vision than just going back and forth to the Space Station. That's what the Constellation [Program] was all about.

HACKLER: You've mentioned a few times the Commercial Resupply Services contract that was the follow on to COTS—did you have any involvement in how that was selected?

WHOLLEY: Yes.

HACKLER: Could you talk about that?

WHOLLEY: The better person on that would be Karen or Sumara. You'll love Karen, you'll love Sumara, and you'll love Courtney. These are three of the finest lawyers I've ever worked with in 30 years of practicing law. They're really good. I'd like to tell you that that's been my only focus, but I have other things as well, and I have so much trust in them. They'd be able to give you more accurate answers than I could. I stayed abreast of it but they were really at the day to day meetings.

HACKLER: What was the biggest challenge for you in setting up the legal framework to make the COTS program a success?

WHOLLEY: For me there was a really steep learning curve because I came to NASA in July of 2004. In February of 2005, I'm still trying to figure out which light switch turned on which light. Mike comes in and says, "This is where we want to go." They had done a wonderful job of getting me up to speed on procurements and learning about the Other Transaction Authority, but in terms of depths of knowledge, Sumara's been doing this for 30 years, Karen's been in it for 20-plus. These are people with just fabulous minds and the flexibility to look and say, "Let's not beat our wings against the side of a cage, let's go around the cage."

The one thing I really love about this organization is that we task organize. We needed international people to talk about the international side of the ISS, we needed the commercial law people, we needed the patent law people, we needed the general law people for a lot of the

ancillary things—who can we take money to, how can we get money, the fiscal law implications of all this—and we needed the procurement attorneys. It was really a team effort, and we had to have them here at Headquarters and down at Johnson, get everybody on the same sheet of music. In the final analysis, I couldn't be more proud of what they came up with. It's worked.

HACKLER: Are there any final thoughts or areas you'd like to discuss before we close out today's session?

WHOLLEY: Not really, other than whatever's been done has been done as a team effort, and I'm just a coach on the bench. That's probably not a good analogy because you have to actually know what you're doing to be a coach on the bench. Let's see, a better analogy might be the coxswain on a crew, there you go. "Pull, pull, pull," trying to keep everybody pulling together.

When people ask me what I do—there are about 155 lawyers in the [Office of the] General Counsel establishment throughout—I say to people, "My first job is to grow the tomatoes that are going to replace me." That is my first job. The second job is lawyers tend to have egos, and it's like pushing 150 ADHD [attention deficit-hyperactivity disorder] frogs through a burning building in a wheelbarrow. It's like, "Just trust me, we'll get to the exit."

HACKLER: Herding cats?

WHOLLEY: Yes, but they're great. I have leaders and I have great people, really great people.

WRIGHT: Before we close, you talked about having to talk with folks on the Hill. Is that you, or do you pull the information together and have someone carry the water up there?

WHOLLEY: Courtney's gone up quite a bit, and Sumara's gone up quite a bit. The questions are usually about the commercial, the intellectual property, what are the government's march-in rights, et cetera.

Here's the bottom line—I've had an empire. When I was in the Marine Corps, I had 1,500 lawyers working for me. Here, my job is to help develop the people. I think it was my first week here, the first thing they sent in to me was a brief that had to go up to the A Suite [Administrator's office]. It was very well written, it came in my office, it had my name to sign. I called the attorney in and we sat down and went over it, and I played sort of devil's advocate and with the Socratic method for a while.

"I can't sign this," and they said, "What's wrong?" I said, "I didn't do it, so I can't sign it. Here's what I want you to do. Take this back, I want you to put your name down as a signer. Put a little block that says 'approved,' and I'll initial in the block. Then you'll go up and brief the Administrator." "What?" I said, "You'll go up and brief. I'll go with you, but you're going to brief. These are very smart people up there, and they know I'm not doing the work. They know that, and I need them to know just how good you are."

That was like a revolution to some folks here, but that was the leadership trait from the Marine Corps. You let your people shine. You have enough confidence in them, you let your people shine. You showcase the people that are doing the work. Two things that I took away from that. Number one, a lot of the people were shocked because they'd never been up to the suite to brief the Administrator. Number two, you get their very best work. That's a byproduct,

but you get their very best work. They're invested in it, they are proud of it. They know they're going to have to go up and brief it. You get their very best work, and their best work is superb.

HACKLER: Thank you very much for your generous time this morning.

WHOLLEY: Oh, thank you guys. I know you're going to try and weave a story together, that's great.

[End of interview]