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OPEN HEARING: NOMINATION OF DR. CHRISTOPHER SCOLESE TO BE DIRECTOR, NATIONAL RECONNAISSANCE OFFICE

HEARING

BEFORE THE

SELECT COMMITTEE ON INTELLIGENCE

OF THE

UNITED STATES SENATE

ONE HUNDRED SIXTEENTH CONGRESS

FIRST SESSION

WEDNESDAY, MAY 1, 2019

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OPEN HEARING: NOMINATION OF DR. CHRISTOPHER SCOLESE TO BE DIRECTOR, NATIONAL RECONNAISSANCE OFFICE

WEDNESDAY, MAY 1, 2019

U.S. SENATE,
SELECT COMMITTEE ON INTELLIGENCE,
Washington, DC.

The Committee met, pursuant to notice, at 9:05 a.m. in Room SH–216, Hart Senate Office Building, Hon. Richard Burr (Chairman of the Committee) presiding.

Present: Senators Burr, Warner, Blunt, Cornyn, Sasse, King, Harris, and Bennet.

OPENING STATEMENT OF HON. RICHARD BURR, CHAIRMAN, A U.S. SENATOR FROM NORTH CAROLINA

Chairman BURR. I call this hearing to order. I'd like to welcome our witness today, Dr. Christopher Scolese, President Trump's nominee to be the next Director of the National Reconnaissance Office. Dr. Scolese, congratulations on your nomination.

I'd like to start by recognizing your wife, Dianne, and your four children Jenny, Dan, Lauren and Anna. Welcome. Are we missing one of them? Oh, back there, okay. Alright. I know from personal experience just how important a supportive family is and to each of you my thanks and the Committee's thanks and the Congress' thanks for your willingness to let your father and husband do this. I know from personal experience just how important that supportive family is.

Our goal in conducting this hearing is to consider the nominee's qualifications and to allow for thoughtful deliberation by our members. Dr. Scolese has provided substantive written responses to over 50 questions presented by the Committee, which we appreciate.

Today we're glad to hear from Dr. Scolese in open session and we welcome our colleague, Senator Cardin.

Dr. Scolese graduated from State University of New York at Buffalo with a degree in electrical computer engineering. He earned a master's degree also in electrical and computer engineering and a Ph.D. in systems engineering, both from George Washington University. Earlier in his career he served honorably in the United States Navy. Prior to his position as director of NASA's Goddard Space Center, he served as NASA Associate Administrator and the NASA Engineer Chief.

As I mentioned to others during their nomination hearings, I can assure you that this Committee will faithfully follow its charter and conduct vigorous and real time oversight of the Intelligence Community, its operations, and its activities. We'll ask difficult and probing questions of you and your staff and we'll expect honest, complete, and timely responses. I look forward to supporting your nomination and assuring its consideration without delay. I want to thank you again for being here with us. I look forward to your testimony.

I'll now recognize the Vice Chairman for any comments he might have.

OPENING STATEMENT OF HON. MARK R. WARNER, VICE CHAIRMAN, A U.S. SENATOR FROM VIRGINIA

Vice Chairman WARNER. Thank you, Mr. Chairman. And Dr. Scolese, I'd like to welcome you and your family and congratulate you on your nomination. If you are confirmed, you will be the first Senate-confirmed Director of the NRO. This Committee added the confirmation requirement to ensure robust and effective oversight of our Nation's overhead intelligence satellite programs. But it also reflects the importance of NRO as a key member of the Intelligence Community. As we discussed in our meeting a few weeks ago, technology is changing rapidly, and the commercial sector is leading the way, I believe, in space. Given advances in technology and the growing threat to our space system from China and Russia, NRO has begun to embrace a new way of doing business.

Today there is consensus that, where possible, we should be leveraging commercial capabilities to make use of new technology, often at a better bang for the taxpayer's buck. I'm encouraged by and support NRO's new direction. But I think it can move faster still. Dr. Scolese, our discussion a few weeks ago led me to believe your experience and approach is the right fit for the job. But I want to make sure that you and I agree on the stakes at hand. Like the NRO, the Defense Department is looking at ways to respond with more agility to threats in space, to speed up acquisitions, and to partner with the commercial sector. The Administration has decided the best way to do this is to reorganize and establish a new Space Force. The President's directive on the Space Force explicitly ruled out including NRO as part of the new military element, and yet Acting Defense Secretary Shanahan testified a few weeks ago that "there is a need to integrate the NRO into the Space Force" when an "issue of timing precluded its inclusion in the initial proposal." Dr. Scolese, I need you to address this issue head on in your testimony today. The directive didn't talk about an issue of timing. It stated that NRO would be excluded from the Space Force and there are good reasons for this. NRO is an acquisitions organization. It doesn't fit under the Air Force or any other service element. In fact, it already incorporates military service members within it, including Air Force personnel who are already counted as part of the proposed Space Force.

So, if DOD is looking for even more personnel for Space Force, NRO isn't the place to look. Over 40 percent of its personnel are CIA officers which means that if NRO were to be moved to the Space Force, almost half of the NRO wouldn't go with it. This

would break the organization. The NRO is a key member of the Intelligence Community that is 91 percent funded by the National Intelligence Program.

While the NRO informs a number of partners across the military, Federal Government and international community, it is ultimately responsible for intelligence satellites that deliver highly sensitive information to the Intelligence Community. We should focus on deepening the NRO's existing partnerships and capabilities that are serving the IC well, rather than trying to fix something that isn't broken. That's the last thing I'll say in the opening comments. I know we've talked about this.

This Committee will continue to do its oversight over the NRO, and we expect its new Director, as the Chairman has indicated, to abide by the legal obligation to keep the intelligence oversight committees fully and currently informed of all significant intelligence activities. The NRO's budget is significant and it's classified, which means that the American people need to have confidence that you will be responsible with their tax dollars and forthcoming with this Committee.

Dr. Scolese, thank you for your willingness to serve. I look forward to your testimony and I promise I won't hold it against you that you got Senator Cardin introducing you.

Chairman BURR. At this time, I'd like to recognize Senator Cardin for an introduction.

OPENING STATEMENT OF HON. BEN CARDIN, A U.S. SENATOR FROM MARYLAND

Senator CARDIN. Well, thank you very much, Chairman Burr, Vice Chairman Warner, and Senator Blunt, it's a pleasure for me to introduce Dr. Christopher Scolese to the Committee. I was very pleased that President Trump decided to nominate Chris to serve as the next Director of the National Reconnaissance Office, NRO, and the first to be confirmed by the United States Senate. I wholeheartedly endorse President Trump's decision and support his confirmation. I support the nomination.

It's bittersweet, quite frankly, Senator Warner, because we are going to lose him at the Goddard Space Flight Center where he's held that position as the longest director of Goddard. He's done an incredible job in that leadership. To put the matter simply, he knows how to put stuff into space and make it work.

I will give you just one example.

The Terra Mission. Chris was the project manager. Terra was supposed to be a five-year earth science mission that has now lasted 20 years. Terra explores the connection between earth's atmosphere, land, snow and ice oceans, and energy balance to further our understanding of the earth.

I know that NRO is headquartered in the State of Virginia but, as Senator Warner knows, Maryland and Virginia have a regional commitment to work together in regards to our space program. Senator Warner, I was just recently at the Wallops Flight Facility on April the 17th for the latest successful commercial resupply service launch to the International Space Station. Yes, I recognize that is located in Virginia, but proud Marylanders helped make that one of the most successful facilities that we have. And I visited

Goddard, which is located of course in Maryland, on March the 4th to discuss the impact of the 35-day Government shutdown and the budget picture going forward with Chris and Goddard workforce—an incredible workforce that is very much motivated by their leader.

Dr. Scolese certainly has the academic credentials for the job. He holds a bachelor of science degree in electrical and computer engineering from the State University of New York at Buffalo. He earned a master's degree in electrical and computer engineering and a Ph.D. in systems engineering from George Washington University. After Chris earned his bachelor's degree, Admiral Rickover personally selected him to serve as the Naval Sea Systems Command where he worked on development of instrument and multiprocessor systems for the U.S. Navy and the Department of Energy.

Dr. Scolese's stint in the nuclear Navy from 1978 to 1986 was just the beginning of a long, distinguished career in public service. In 1987 he joined Goddard's Earth Science Team and became earth science program manager and deputy director of flight projects. Later he moved to NASA's headquarters as deputy associate administrator for space science for three years before returning to Goddard where he rose to become deputy director. Dr. Scolese then returned to NASA headquarters first as chief engineer and then as associate administrator, the top civil servant of the agency. He served as acting administrator from January to July 2009. He went back to Goddard to become director in 2012. I went through all that to show that he has a long career in public service, where he's used his talent to the best interest of our country.

Moving over to the helm at NRO is a natural fit for Dr. Scolese. Since Goddard manages many of NASA's space telescope programs, including Hubble Space Telescope and the wide field infrared survey telescope, they have technology heritage from NRO satellites. I've really gotten to know Dr. Scolese as the leader at Goddard. I can tell you he has an excellent reputation and working relationship with our Congressional delegation. I've met with the workforce many times. He inspires all of the workers at Goddard from the most highly skilled to those that are essential for the team to work as a team.

What impresses me a great deal about Dr. Scolese is the way that he's engaged younger people into the process. He has had over 500 interns at Goddard, and he has been very much instrumental in developing the relationships for the next generation of leaders to come into public service. Above all, Chris is a dedicated public servant with the accolades and awards to prove it and I can name many, many awards that he has received, and I'll put that into the formal record. I'm glad, Mr. Chairman, you mentioned his family. He has a very supportive family and I do want to thank Dianne and the children for sharing their husband and father with us in public service. I have no doubt that he will be a superb NRO Director and I'm very proud to be with him today.

Chairman BURR. Senator Cardin, thank you for that introduction. With a history as long and involved as Dr. Scolese, you would think that head of black hair might have changed. I will assure you

the NRO will challenge the color of that hair over the next few years.

Dr. Scolese, would you please stand and raise your right hand?

Do you solemnly swear to tell the truth, the whole truth and nothing but the truth, so help you God?

Dr. SCOLESE. I do.

Chairman BURR. Please be seated.

Dr. Scolese, before you move to your statement, I'd like to ask you to answer the five standard questions the Committee poses to each nominee who appears before us. They just require a simple yes or no answer for the record.

Do you agree to appear before the Committee here and in other venues when invited?

Dr. SCOLESE. I do.

Chairman BURR. If confirmed, do you agree to send officials from your office to appear before the Committee and designated staff when invited?

Dr. SCOLESE. I do.

Chairman BURR. Do you agree to provide documents or any other materials requested by the Committee in order to carry out its oversight and legislative responsibilities?

Dr. SCOLESE. I do.

Chairman BURR. Will you ensure that your office and your staff provide such materials to the Committee when requested?

Dr. SCOLESE. I do.

Chairman BURR. And finally, do you agree to inform and fully brief to the fullest extent possible all members of this Committee on all intelligence activities rather than only the Chair and the Vice Chairman?

Dr. SCOLESE. I do.

Chairman BURR. Thank you very much for that.

We'll proceed now to your opening statement, after which I'll recognize members by seniority for up to five minutes.

Dr. Scolese, the floor is yours.

STATEMENT OF CHRISTOPHER SCOLESE, Ph.D., NOMINEE FOR DIRECTOR, NATIONAL RECONNAISSANCE OFFICE

Dr. SCOLESE. Thank you, Chairman Burr, Vice Chairman Warner, distinguished Members of the Committee. I am honored to appear before you as the first Presidential appointee requiring Senate confirmation for the position of Director of the National Reconnaissance Office.

I was privileged to meet with members of the Committee to hear your views and goals for the NRO and the Intelligence Community. I would also like to thank the Committee staff, as I know it's a tremendous amount of work that goes into any confirmation hearing. I am honored to have been nominated by the President. I am also grateful that Acting Secretary of Defense Shanahan and Director of National Intelligence Coats have the trust and confidence of my ability to serve in this new capacity. If confirmed, I look forward to working with you and with the extraordinary women and men of the NRO.

I am profoundly grateful to have my family here with me today. My wife of 38 years, Dianne, and our children Jenny, Daniel,

Lauren and Anna. I'd also like to acknowledge Jenny's husband Mark, Dan's wife Moore is not here unfortunately, as well as Lauren's fiancé Ian and Anna's friend Mike. Their unconditional support means the world to me.

Additionally, I want to remember my parents. They passed away many, many years ago. My father was a typewriter repairman and my mother was a secretary. They encouraged my sister and I to go to college so that we could have a better life and more opportunities. I think about them daily and the many sacrifices they made for me and my sister so that I could be here today.

I was born and raised in Buffalo, New York. It was a wonderful place to grow up. As a young child I was inspired by the space program and space exploration. What intrigued me the most were the machines and the computers that made it possible to look back at our Earth and to visit other planets. I spent a lot of time in school building rockets and electronic devices for fun. My science teacher, Mr. Weiss, encouraged me to take that fun and enter the Western New York Science Fair, which I went on to win with a project calculating the drag coefficient of rockets. That early passion set the trajectory for my career, a path that has led me to be here today as the nominee for the Director of the National Reconnaissance Office.

Mr. Chairman, I am proud to have had 40 years of service in the Navy and NASA. I've been fortunate to be involved with diverse systems such as nuclear submarines and spacecraft that have been instrumental in protecting our national security and advancing our knowledge of the Earth and the universe.

During the last three decades at NASA I have had the opportunity to work on the full range of NASA's missions, from sending humans into space to missions that are providing data about the earth and the universe. I held various positions involved in the design, development, acquisition, launch, and operation of space systems, large and small, scaled to accomplish our goals.

Under my leadership, Goddard Space Flight Center developed satellites and space systems to meet requirements for NASA and other organizations. To accomplish these missions, I challenged the teams I led to develop new capabilities, seek opportunities to inject new technologies, leverage commercial capabilities, and collaborate with partners. I ensured that the valuable lessons we learned were incorporated into plans that have resulted in improved performance on recent missions, meeting technical costs, and schedule requirements. These best practices have been applied across a range of missions for NASA and other organizations, such as NOAA and the USGS.

I also found that it is critical to communicate often with all parties involved to ensure that common understanding of progress and risk so adjustments can be made when necessary and when they are still affordable. It was also clear to me while leading Goddard that interagency cooperation and collaboration is key to success at the national level. If confirmed, I will make interagency collaboration a priority at the NRO.

Additionally, the growth of a commercial space industry capable of launching satellites and providing data is an opportunity that should be leveraged to replace or enhance required capabilities. At

the same time, the continued advance of technology in all areas from artificial intelligence to material science provides an opportunity to maintain our national space advantage in an increasingly competitive and contested environment. The combination of commercial capabilities, technological advancements, and Government-developed systems provides opportunities to expand the supplier base, improve performance, reduce cost, and enhance resiliency.

In organizations, people are at the heart of its success. At NASA I have had an opportunity to lead a large, diverse workforce. Nothing can be accomplished without the talented men and women who are motivated to accomplish the mission. I am proud to be part of NASA, which has been ranked as the best place to work in Government for the past seven years. I am also proud of creating an environment at Goddard that was also ranked as one of the best places to work in Federal Government. If confirmed, I am committed to fostering an environment at the NRO that welcomes diverse views, invites new concepts, and energizes its workforce every day. This includes recruiting, training, and retaining a world-class workforce, allowing the NRO to provide premier space reconnaissance capabilities.

In closing, the NRO is one of the fabled organizations of the Space Age and the capabilities that it has provided have been instrumental in maintaining the United States' strategic advantage. The NRO helps keep our country and the world safe from those who seek to do us harm. I am honored to be considered for this position. If confirmed, I look forward to working closely with this Committee and the entire Congress to leverage our opportunities and address our challenges. If confirmed, I will seek your support for the women and men of the National Reconnaissance Office and to ensure that the NRO has the support it needs to continue developing and operating the world's premiere reconnaissance satellites delivering critical intelligence to policy makers, intelligence analysts, and war fighters.

Mr. Chairman, I want to thank you and the Committee for the hard work that it put into the oversight process. If confirmed as Director, I will uphold the National Reconnaissance Office's obligations to Congress and the American people.

Chairman Burr, Vice Chairman Warner, and distinguished members of the Committee, thank you the opportunity to appear before you today. I look forward to answering your questions.

[The prepared statement of Dr. Scolese follows:]

Statement for the Record
Dr. Christopher J. Scolese
Nominee for Director, National Reconnaissance Office
Senate Select Committee on Intelligence
May 1, 2019

Introduction

Chairman Burr, Vice Chairman Warner, distinguished members of the committee – I am honored to appear before you as the first Presidential appointee requiring Senate confirmation for the position of Director of the National Reconnaissance Office

Thank you for the opportunity to meet privately with several of you to hear your views and goals for the National Reconnaissance Office and the Intelligence Community. I would also like to note the efforts of the Committee staff, as I know there is a tremendous amount of preparation that goes into any confirmation hearing.

I am honored to have been nominated by President Trump and grateful that the President, Acting Secretary of Defense Shanahan, and Director of National Intelligence Coats have the trust and confidence in my ability to continue serving our nation in this new capacity If confirmed, I look forward to working with you and with the extraordinary women and men of the National Reconnaissance Office.

I am profoundly grateful to my family: my wife of 38 years—Dianne—and our four children—Jenni, Daniel, Lauren, and Anna, who are here with me today I would like to acknowledge Jenni's husband Marc, Dan's wife Maura, and our granddaughter Maddie, as well as Lauren's fiancé Ian, and Anna's friend Mike. Their unconditional support means the world to me; I am truly thankful. Additionally, I want to remember my parents who passed away many years ago My father was a typewriter repair man, and my mother was a secretary; they encouraged my sister and me to go to college so we could have more opportunities I think about them daily, recognizing the sacrifices they made so that we could pursue our dreams.

I was born and raised in Buffalo, New York, and it was a wonderful place to grow up As a young child, I was inspired by the space program and space exploration. I was fascinated by all aspects of space exploration. What intrigued me the most were the machines and computers that made it possible to look at our Earth and visit other planets I spent a lot of time in school building rockets and electronic devices for fun. My science teacher—Mr Weiss—encouraged me to enter the western New York Science Fair, which I went on to win with a project calculating the drag coefficient of rockets. That early passion set the trajectory for my career—a path that has led me to be here before you today as the nominee for the Director of the National Reconnaissance Office.

The Position

Mr. Chairman, I am proud to have had 40 years of service in the Navy and at NASA. I have been fortunate to be involved with diverse systems, such as nuclear submarines and spacecraft, that have been instrumental in protecting our national security and advancing knowledge about our place in the universe.

During the last three decades at NASA, I have had the opportunity to work on the full range of NASA's missions, from sending humans into space to missions that are providing data about the Earth and our Universe. I held various positions involved in the design, development, acquisition, launch, and operation of space systems—large and small—scaled to accomplish our goals

Under my leadership, NASA's Goddard Space Flight Center developed satellites and space systems to meet the requirements for NASA and other organizations. To accomplish these missions, I challenged the teams I led to develop new capabilities, seek opportunities to inject new technologies, leverage commercial capabilities, and collaborate with partners I ensured that the valuable lessons we learned were incorporated into plans that have resulted in improved performance on recent missions, meeting technical, cost, and schedule requirements. These best practices have been applied across a range of missions for NASA and other organizations such as the National Oceanic and Atmospheric Administration and United States Geological Survey. I also found that it is critical to communicate often with all parties involved to assure a common understanding of progress and risk so adjustments can be made when necessary and when they are still affordable. It was clear to me while leading Goddard that interagency cooperation and collaboration is key to success at the national level. If confirmed, I will make interagency collaboration a priority for the National Reconnaissance Office.

The growth of a commercial space industry capable of launching satellites and providing data provides an opportunity that should be leveraged to replace or enhance required capabilities. At the same time, the continued advance of technology in all areas from artificial intelligence to materials science provides an opportunity to maintain our national space advantage in an increasingly competitive and contested environment The combination of commercial capabilities, technological advancements, and government-developed systems provides opportunities to expand the supplier base, improve performance, reduce cost, and enhance resiliency

An organization's people are at the heart of its success. At NASA, I have had the opportunity to lead and manage a large, diverse workforce. Nothing can be accomplished without the talented women and men who are motivated to accomplish the mission. I am proud to be part of NASA, which has been ranked as the Best Place to Work in Government for the last seven years I am also proud of creating an environment at NASA Goddard that was also ranked as one of the best places to work in the federal government. If confirmed, I am committed to fostering an environment at the NRO that welcomes diverse views, invites new concepts, and energizes its workforce every day. This includes recruiting, training, and retaining a world-class workforce, allowing the National Reconnaissance Office to provide premier space reconnaissance capabilities.

If confirmed, knowing that our adversaries are becoming increasingly more adaptive, I will endeavor to ensure that the nation's policymakers, intelligence analysts, and warfighters will continue to maintain our strategic advantage with timely, relevant space reconnaissance data.

Conclusion

In closing, the National Reconnaissance Office is one of the legendary organizations of the space age, and the capabilities that it has provided have been instrumental in maintaining the United States strategic advantage. The National Reconnaissance Office helps keep our country—and the world—safe from those who seek to harm U.S citizens, our interests, or our allies.

I am honored to be considered for this position. If confirmed, I look forward to working closely with this committee—and the entire Congress—to leverage our opportunities and address our challenges. If confirmed, I will seek your support for the women and men of the National Reconnaissance Office and to ensure that the National Reconnaissance Office has the support it needs to continue developing and operating the world's premier reconnaissance satellites, delivering critical intelligence to the policymaker, intelligence analyst, and warfighter.

Mr Chairman, I want to thank you and the Committee for the hard work that is put into the oversight process. If confirmed as Director, I will uphold the National Reconnaissance Office's obligations to Congress and the American people.

Chairman Burr, Vice Chairman Warner, and distinguished members of the committee, thank you for the opportunity to appear before you today. I look forward to answering your questions.

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Chairman BURR. Dr. Scolese, thank you very much for that testimony and once again thank you to your family for their willingness to go along with this.

Before we begin, I'd like to advise members that pursuant to Senate Resolution 400, Dr. Scolese's nomination will be referred to the Senate Armed Services Committee after our Committee reports his nomination to the full Senate. It's my intention to move to a Committee vote on this nomination as soon as possible.

Therefore, for planning purposes, if any members wish to submit questions for the record after today's hearing, please do so by close of business today. With that, the Chair would recognize himself for up to five minutes and then members by order of seniority.

Dr. Scolese, in your response to the Committee's additional pre-hearing questions, you recognized that the NRO, and I quote, "maintains close partnerships across the IC and with defense- and space-facing organizations such as the National Security Agency, the CIA, Defense Intelligence Agency, National Geospatial Intelligence Agency, Air Force Space Command, U.S. Strategic Command, National Aeronautics and Space Administration." You further stated that if confirmed you would work with IC partners such as NSA and the NGA to ensure NRO-developed mission-models are leveraged across the IC to maximize their value.

Do you support the NRO remaining as an element of the Intelligence Community?

Dr. SCOLESE. I do.

Chairman BURR. How would you respond to those who propose to move the NRO from the Intelligence Community, for instance, to be part of Space Force?

Dr. SCOLESE. Senator, I recognize that SPD–4 was very clear in identifying that NRO was separate from the Space Force. I think that's the correct way to go as the NRO supports the Intelligence Community, the Department of Defense, the combatant commanders, as well as the civil community. And as such it has broad responsibilities that I believe can best be satisfied with the current arrangement with the NRO separate from the Space Force.

At the same time, I recognize if the Space Force is created, the NRO must collaborate with it as it does with the other services and the Air Force today.

Chairman BURR. You moved from an institution where you sort of have full control over what you're doing and the impact that you're trying to make. And now you'll lead an agency that really does supply customers with very specific information. How would you guarantee that NRO meets those requirements for the Intelligence Community?

Dr. SCOLESE. Actually, I have experience with that at NASA. Many of our missions, particularly at the Goddard Space Flight Center, support other organizations such as NOAA and the U.S. Geological Survey, as well as supporting the science community. Those organizations typically develop their requirements and their desires and it's our responsibility to work with them to understand how we can best accomplish the set of requirements that they've developed, and that includes a discussion about the resources that we have available to us, the technological capabilities that are available, perhaps commercial and other organizations that may be

providing similar data or maybe exactly what they're looking for. I would intend to bring that experience to the National Reconnaissance Office, if confirmed, to go off and do that. So, supporting a diverse customer base and developing a mission based on requirements would be something that I have some considerable experience with.

Chairman BURR. Let's talk about your workforce.

What are your plans for recruiting and retaining those with a science, technology, engineering, arts, and math expertise if confirmed?

Dr. SCOLESE. I believe one of the most important things in retaining a workforce and attracting a workforce is having an exciting mission. I've been fortunate in NASA to have that and I believe that the NRO has a very exciting mission. Space is exciting. Supporting our national defense and our national security is critical and provides people with an opportunity to serve their Nation and in ways that they best can do it.

I also believe that it's important to create an environment where people can understand that their views will be respected, that their personal views will be respected, that they have an opportunity for advancement, and that they can use their creativity to develop new capabilities and to support the war fighter and the intelligence analysts. So, it would be my intent to go off and work that. At the same time, I recognize it's important to create a pipeline. It's been something that is relatively easy at NASA because we don't have to worry about security clearances as much. But I believe it's something that needs to be looked at at the NRO, particularly now that there is a cadre of NRO professionals to go and partner with organizations so that we can in fact establish contacts with people in college, for sure, and maybe even in high school to encourage them to pursue careers in STEM—and hopefully view the NRO as an object where they would want to work at.

Chairman BURR. If the Vice Chairman has his way, the security clearance problem will go away and be fixed, and we'll praise him for his work. With that, I recognize the Vice Chairman.

Vice Chairman WARNER. Thank you, Mr. Chairman.

And I appreciate the Chairman's first couple of questions. I want to come back to them as well. The Chairman and I wrote a letter to SASC [Senate Armed Services Committee] and the Appropriations Committee on April 22 noting our concern with Acting Secretary Shanahan's recent testimony about the need to integrate NRO into the Space Force. In an answer to the prehearing question, and I appreciate your answer to the Chairman, you wrote, quote, "one of the guiding principles in the standup of the Space Force is to minimize risk to mission."

Do you think, in your opinion, would moving NRO to Space Force or reorganizing it in some ways hit that goal of minimizing risk to mission?

Dr. SCOLESE. Any change in an organization typically needs to be done very carefully, otherwise you could increase risk. So, any changes need to be evaluated very carefully and understood before they're implemented to make sure that you don't impact the mission. And as I mentioned, I believe that the NRO should stay sepa-

rate as indicated in SPD–4 and that would allow the NRO to continue to pursue its mission as well as it does today.

Vice Chairman WARNER. With an organization that's funded 91 percent by the National Intelligence Program, and clearly this Committee feels very strongly on this. I appreciate your testimony today and earlier conversations that you will resist these bureaucratic moves to potentially roll NRO into Space Force. I hope as you move forward, and I hope you will move forward in your nomination, that you will constantly turn to this Committee if you need assistance on that challenge going forward.

I want to move to another area that the Chairman and I have been working on. I think we've made some progress in certain areas like radar, but we're very concerned that the pace of development and acquisition at NRO historically has been pretty slow and—with almost Moore's Law hitting satellites now—if you've got a two-year requirements document and then a two-year RFP, you know you may have technology that may have leapt over your whole process.

How can you take some of the lessons you've learned at NASA, bring them over to NRO, to speed up this development acquisition process?

Dr. SCOLESE. One of the things that we did at NASA is recognize that commercially developed satellites, as an example, are extremely capable and can greatly increase the pace at which we can field missions. We called it the Rapid Space Craft Development Office and we've had great success with it. It allows us to buy a satellite that we know will work, that the commercial sector has developed, and then we focus on the things that the Government needs to do—the scientific instruments or the detection technologies that are required—that reduces our cost-risk because we're buying a satellite that we know is going to operate. We know what it's going to cost. It allows us to focus on the technologies that we need to advance in order to accomplish a mission. It gets the mission done quicker because you know the interface that you're going to have to work with, because a spacecraft is built, and it's proven to be extremely valuable. Our weather satellites today, as an example, we demonstrated this to NOAA with a satellite called the "Suomi NPP," where we used a commercial satellite and put weather satellites on it—developed it very quickly to fill a gap—and now our polar weather satellites are built that way. It gives us a greater variety. It gives us more resilience because now we can go to other vendors that have satellites that will operate in that orbit. And in fact, have demonstrated that we can do that. The U.S. Geological Survey is now relying on those types of satellites and that mission development for the Landsat satellites which we have built relatively quickly. We'd like to go faster still, but instrument development has been a challenge. In addition, we have worked with other organizations, commercial organizations, and in fact just a little bit ago, about six months ago, we launched a sensor on a commercial communications satellite demonstrating the ability to do science that way as well.

Vice Chairman WARNER. I'm going to get one last question in, and I appreciate those examples. I also appreciate your references to the ability to partner with commercial. I want to personally

thank you for coming with the NASA administrator last week to Wallops, and as you know, a lot of investment is going in at Wallops, including a new classified payload processing facility that we both toured. NRO has already scheduled a couple of launches out of Wallops this year.

My last question is: if confirmed at NRO how would you view the mission of NRO in terms of launch and the ability to further partner with this new state-of-the-art facility at Wallops?

Dr. SCOLESE. Wallops Flight Facility is part of my current responsibilities as director of Goddard Space Flight Center. It's a wonderful capability that we should certainly take advantage of and having a diversity of launch. It's certainly beneficial to the Nation, and Wallops should play an absolutely critical part. As we discussed last week, we now have an ability to process classified payloads and we have a range of launch vehicles that we can support there. So, it very much can support the NRO mission as well as commercial and NASA missions.

Vice Chairman WARNER. I look forward to continuing the conversations we started last week. Thank you, Mr. Chairman.

Chairman BURR. Senator Cornyn.

Senator CORNYN. Dr. Scolese, congratulations on your nomination. I wonder if you would describe the state of our Government's work in space, including NRO's, relative to our international competitors: Chinese, Russians, others, Indians. Could you give us sort of an overview of where do you think we stand and where we're stronger, where we have some vulnerabilities compared to our peers?

Dr. SCOLESE. Yes, Senator. Overall, I believe the United States is still the leader in space exploration and in overhead reconnaissance. But I recognize that we're existing in a much more competitive environment where our competitors in Russia, in China, and in others are developing capabilities that are approaching the capabilities of ours. And it's something that we need to focus on to constantly stay in front of, by investing in the technologies and working with partners in the commercial industry and our colleagues in other nations to enhance our capabilities.

I'd also recognize that we're under an increasing threat both from physical attack—the most recent demonstration was the ASAT that India demonstrated a few weeks ago—that increases the challenges that we have to our overhead reconnaissance and our satellites. And also, cyber-attacks. Our ground systems need to be secured and protected against those types of attacks so that we can maintain control of our satellites. So, we're existing in a much more congested and contested environment and it's our responsibility to continually find ways to improve our resiliency through technological advance, partnerships with others, reliance on other systems so that we have a diversity of systems and if confirmed as Director of NRO, I would certainly pursue those goals.

Senator CORNYN. Well, it seems to me one natural advantage America has over our competitors around the world is our vibrant, innovative private sector. You've talked a little bit about how to leverage the private sector, but it seems to me there are also some challenges when there's not a lot of competition available for some of these missions and some of these products. Of course, the Army

has just created the Army Futures Command to try to leverage some of the private sector innovation and lower cost and stay ahead of our competitors. But what other steps do you think we need to take in order to increase competitive opportunities so that we can continue to maintain our technological edge compared to our competitors?

Dr. SCOLESE. I think we're at a good time in our country with increasing number of commercial organizations that can provide launch across a range of capabilities from small to large as well as a burgeoning satellite manufacturing capability ranging from CubeSats to larger satellites. And I recognize that the NRO and other organizations, NASA included, are adjusting their architectures to deal with that—to allow for more opportunity for different vendors to compete and have an opportunity to enhance our capabilities by providing us new technologies or by providing us manufacturing capabilities that typically the Government sector doesn't have and will allow us to produce more systems more quickly to allow us to keep that technological advantage over our adversaries.

So, I think the combination of a strong commercial sector now and a burgeoning commercial sector that gives us a full range of capabilities will really enhance our ability to stay at the forefront of national defense and protecting our country.

Senator CORNYN. Will you pledge to do everything you can within your authorities to try to maintain that sort of competition so that we don't get stuck with sole source either products that basically hold the taxpayer hostage and denies this great competitive opportunity we have in terms of keeping our technology at the forefront?

Dr. SCOLESE. If confirmed, and as part of my career, I have always supported competition. I will continue to support competition.

Senator CORNYN. Thank you.

Chairman BURR. The Chair is going to recognize himself for a few more questions.

Dr. Scolese, leaks of classified information put sensitive sources and methods at risk, causing irreparable damage to our national security. In your responses to the Committee's additional prehearing questions you stated that safeguarding our classified information and capabilities is a fundamental requirement for success. If confirmed, how do you plan to address the security of sensitive and classified information?

Dr. SCOLESE. My understanding of how the NRO does that is something that we would have to continue to do by making sure that we hire the right people. That they have the right background checks that are on the personnel side. Also, we have to recognize that cyber-attacks are also critical and while I'm not fully briefed on the capabilities of the NRO, I do know that it's a national interest. It's something that NASA faces each and every day and we work to make sure that our systems are secure.

I recognize that it's an ever-changing environment and we're going to have to adapt and constantly improve our cybersecurity techniques as well as working our physical security for our systems. And intellectual property, working with our vendors and the university environment to assure that we protect that intellectual property that's absolutely critical for our national defense, while at the same time allowing those technologies to be used to benefit our

commercial sector and advance our competitive advantage throughout the world. So, it's a complicated balancing of capabilities, but something that I'm fully committed to and something that I've had a lot of experience with at NASA.

Chairman BURR. One last question. Will you commit to reporting to this Committee any security breaches that you find have happened and the process NRO makes towards preventing and deterring unauthorized disclosures of classified information?

Dr. SCOLESE. Yes, I will.

Chairman BURR. Vice Chairman.

Vice Chairman WARNER. Let me also just say to your family the fact that we're little light on attendance this morning is actually a good sign.

You know one of the things that you're going to bring, and Senator Cardin went through your background—extraordinarily impressive—but you are going to be moving from the kind of rocket-scientist world to the Intelligence Community world. I'd like you to talk to that.

And one of the things I think clearly NASA has done better than NRO—we've got to make sure that the workforce looks like the rest of America in terms of diversity, in terms of women. Can you speak to efforts that may have taken place at NASA and how you might bring that same notion to NRO to make sure NRO's more reflective of what America looks like and specifically how do you think the transition will go from the NASA rocket science nonclassified world, in most part, to taking on leadership of one of the most critical components of the whole Intelligence Community?

It's a two-part question.

Dr. SCOLESE. It's two part. I understand, Sir. My experience at NASA and looking at my understanding what the NRO does are actually very similar. At Goddard in particular, we develop satellites, either in house or more commonly with the industrial sector and a broad spectrum of the industrial sector. So, we design and build satellites that operate in earth's orbits similar to what the NRO does, different purpose, but looking down at the earth, operating in often the same regime. We share, many times, vendors, the suppliers of satellites and rockets. We use typically the same. We also work together very closely in assuring that our supply chain is meeting the needs of the community. So, we have a lot of interaction there. And we work in technological areas. So, a lot of the experience that I have at NASA, particularly at Goddard, is very relevant to the NRO function and performance. The specific details may be different in terms of how we task our satellites to do things and who has the authority to task the satellites.

But we still do tasking; for instance, the Hubble Space Telescope has to be tasked, and the Landsat satellites have to be tasked in order to acquire whatever data that they may need to look at. So, very similar functions and I can bring that knowledge there. There are certainly things that I will be learning if confirmed at NRO. So, I think we have, you know, very complementary and similar objectives and work with a similar supplier base, if you will, and can bring slightly different experiences to the NRO that may benefit the mission.

From a diversity and inclusion standpoint, as you mentioned, at NASA we have a very diverse workforce, particularly at Goddard, and it's been a focus of mine as the director of the Goddard Space Flight Center.

One of the reasons I believe that Goddard has performed so well as one of the best places to work within NASA and within the Government is because of our diverse workforce. Some of the things that we have done there is create advisory committees where the various groups within the organization, we have a woman's advisory group. We have an African American advisory group, Hispanic. We also have a veteran's advisory group. So, we try and work with the communities to understand what are the issues that the organization is supporting or not supporting. They tend to be very positive and constructive discussions about what we can do from an organizational standpoint, what's in our control and how we can improve the environment at the center.

I would bring that same type of experience to the NRO, if confirmed, and bring the same commitment to diversity and inclusion which includes establishing a pipeline. It's not just putting the right people in the right job, but it's making sure that people have an opportunity to advance and that there is a pipeline all the way from the university, for sure, all the way up to the most senior positions in the organization.

Vice Chairman WARNER. It sounds like Goddard knows where you got a very robust internship program.

Dr. SCOLESE. Yes, we do.

Vice Chairman WARNER. Little harder on the intel side but something that I hope you'll try to explore.

Dr. SCOLESE. I will definitely try and explore that and that's one of the reasons for having the pipeline. The reason I mentioned the advisory committees is because we ask them to go off and talk with people from their universities and say, hey, Goddard is a great place to come and work at and you can see I'm there and what I can accomplish. So, yes, we want to establish that pipeline and I would, if confirmed, work at NRO to try and establish an internship program that would allow us to start that pipeline up.

Vice Chairman WARNER. And I have no further questions. Senator King I'm sure will have a question or two, but the one thing that is a little unique at NRO also is their special relationship with NGA. And I think things have been pretty good on that front the last few years and I know from our earlier conversation you'll commit to make sure that strong partnership as one of your premiere customers will continue.

Thank you, Mr. Chairman.

Dr. SCOLESE. Absolutely.

Chairman BURR. Senator King.

Senator KING. Thank you, Mr. Chairman.

Dr. Scolese, I'm sure you're aware of the GAO report that recently came out. It's not very encouraging. It indicates a deterioration in cost performance and on-time launch performance. Are you aware of this report? Have you seen this?

Dr. SCOLESE. Yes.

Senator KING. What do we do about it?

Dr. SCOLESE. One of the things that's very important is to learn from all of our experiences at NASA and at Goddard in particular, we had the opportunity to work with many different organizations and accomplish many different missions. One of the things that I did as chief engineer, and continued on while I was in other positions, was to go off and look and understand why our missions didn't perform quite as well as we would like in terms of cost and schedule. Technically, they have met their objectives and done that very well. We developed some guidelines for missions to follow and since we adapted those guidelines, most of the science missions at the Goddard Space Flight Center have in fact performed at or better than expected. So, it's lessons learned that are absolutely critical to take forward.

Senator KING. Are you open to cooperating with GAO? Including their people in your analysis and reports on what you're doing? I think GAO is an important asset.

Dr. SCOLESE. Absolutely. And in fact, when I mentioned the study we did, we relied heavily on GAO's reports from the past and at that time current reports and we continue to look at those and take those extremely seriously.

Senator KING. You have tremendous experience. There's no doubt about that and your background is exceptional for this position. On the other hand, one of the differences is that NASA is a wholly civilian, sort of on its own timeline. I'm about to use a phrase I haven't heard in a long time. "Space race." We're now in a space race. And it's a race not only in terms of getting hardware up there, but what the hardware is and what it can do and what the capabilities are. This is not an academic research exercise. This is a very serious national security question.

Are you prepared to make the switch from NASA to NRO in terms of the orientation toward the urgency of this enterprise?

Dr. SCOLESE. Absolutely. At Goddard we also have participated in national security. We support the NOAA and the USGS in providing the weather satellites and the environmental satellites that our Nation relies on to not only predict the weather but to predict severe storms. And I recognize that the NRO is a different mission, but it's similar to what we have done at NASA and if confirmed, I believe I can shift over to the requirements and responsibilities of the NRO.

Senator KING. At Goddard and NASA were you involved in the sort of discussion as between larger satellites, smaller satellites? Do you feel that smaller satellites is an important direction that we have to go in terms of both speed of deployment, resiliency, and all those things? Give me your thoughts on small versus large in space.

Dr. SCOLESE. Absolutely. I believe that there's room for all types of satellites, and small satellites certainly play an important role. They are satellites that we can develop quicker to develop, to identify, to mature technologies, and demonstrate capabilities at a higher pace than you can with larger satellites. At the same time, we have to recognize that there are physics that may determine the size of a satellite. But certainly, smaller satellites are something that are critical. They can improve, as I said, our ability to address technologies, to demonstrate capabilities, to enhance our resilience,

to get capabilities up there sooner. And we have utilized those at NASA, and if confirmed I would bring that same intention to the National Reconnaissance Office.

Senator KING. Two points and my time is about to run out. One is the importance of close, close, close communication and collaboration with NGA to be sure that we're doing what they need in terms of their being the customer and their ultimate customers in the Intelligence Community. I think that's incredibly important. And I think the word for the future is going to be resiliency and I think that's got to be a top of mind consideration in all of our future space endeavors based upon what we know is happening out in the competitive world and I hope you'll bear that in mind.

Dr. SCOLESE. Absolutely.

Senator KING. Thank you very much. Appreciate it. Thank you, Mr. Chairman.

Chairman BURR. Senator Harris.

Senator HARRIS. Thank you, Mr. Chairman.

Dr. Scolese, thank you for your years of service at NASA. You have an extraordinary background and in many ways, I believe you're a great fit for this position. But I notice that you have not worked in the Intelligence Community before. So, it's obviously going to be a unique experience and you'll be leading a large organization. I know in my short time in the Senate I've had to learn all the acronyms and of course there's lots of secrecy involved in the work of the IC.

So, what do you anticipate as being the greatest challenge for you in making the transition into the IC?

Dr. SCOLESE. I have experience working with the NRO and other organizations, the Air Force, the Navy. Early in my career for sure in the Navy. So, I have experience working in a classified environment and supporting that. Certainly, you're right. Learning all the new acronyms will certainly be a challenge. However, I think my background in space systems development and acquisition and my understanding of the NRO's you know responsibilities overlap very well. There will be differences clearly in how NASA did it and NRO did it and how it needs to be done in the Intelligence Community but I'm certain that I can learn those quickly and become a contributing member.

Senator HARRIS. Great. And at NASA you've been—and I thank you for this—a proponent of adoption of cutting-edge commercial technology and integrating those into programs. So, if confirmed how would you accelerate the rate of technology adoption at the NRO?

Dr. SCOLESE. I think the similar way to what you would do it in any organization, which is to establish a technology pipeline, so that you have technologies that you're working on, that address questions that you think may be out there, or capabilities that may be needed five years from now or ten years from now. Understanding what others are doing as well because you don't have the answers in all cases so understanding what's going on in universities, understanding what's going on in industry, and sharing that with the user community—with the NGA, the NSA, and the broader community that's out there in the Department of Defense and the Intelligence Community—so they can understand what you're

working on, what you think has benefit, and harmonize that with the requirements that they see currently so that you can improve performance today either by acquiring better data or reducing cost or improving resiliency or addressing a question that we think is going to come out in the future. And collaborations and recognizing the capabilities of the commercial sector as well as our partners internationally and in other agencies to enhance the mission.

Senator HARRIS. And I appreciate your point about the need for interagency communication and sometimes we do that well in Government and sometimes we don't.

How do you propose to be effective with that goal?

Dr. SCOLESE. Something we have experience with at the Goddard Space Flight Center is we acquire the weather satellites for NOAA, and we acquire the land remote sensing satellites for the U.S. Geological Survey. I would bring that experience to the NRO. The main thing is to have frequent and regular communications so we understand both what is desired by the user community, and understand whatever issues they may have with the performance of our organization, and at the same time explain the other way what our challenges are, what our accomplishments are, so that we can come to a common understanding of where we are, what our risks are and be able to address those quickly and effectively and not just have a phone call when there's a problem.

Senator HARRIS. And then, I've just about a minute left, but on the subject of AI technology, what areas of the NRO's mission do you think would benefit from an incorporation and adoption of AI?

Dr. SCOLESE. My experiences in AI can support all aspects of the mission. Certainly, in terms of determining which data from a huge dataset is of interest to the intelligence analysts or the combatant commander along with understanding the complexities of managing a constellation of satellites as we move into constellations. We've even found that AI can help us in identifying causes for anomalies on spacecraft or ground systems. So, AI I think can help us across the spectrum of capabilities that the NRO provides.

Senator HARRIS. Thank you.

Chairman BURR. Thank you, Senator Harris and Senator King.

All good things come to an end. This has now come to an end, based upon the folks that are here.

Chris, I want to thank you again for your 40 years of service, more importantly for what I think is the biggest commitment of your career and you're well prepared to do it.

Your comments about partnering with a commercial satellite platform to fill a gap for NOAA reminded me that no agency is going to be impacted by the acceleration of technology more than the NRO. And as you know, in this town the architecture isn't designed for things to happen quickly. But intelligence is a function of getting what you need as quickly as you can so that policy makers and warfighters can make the right decisions. This has been a tough road to try to culturally manipulate at NRO, and I say that not as a criticism. I really say it because it's a commitment to do things differently.

It's a challenge for us to unleash the talents and the expertise at NRO to exceed what your customers expect. And those expectations are on content, on frequency. I think the day that as NRO

Director you fill those gaps that exist around the world that are persistent right now, you will have exceeded customers' expectations. I think the Vice Chairman and I are reminded every day that we look at what NRO does and one of the things we've asked for years was: my God why does it cost so much to launch these things? And how can we get launch costs down?

Well, you know, that's just a reality of dealing with big things. And along came Elon Musk and there were a number of things, competition. Had SpaceX not done what they did, then we might still not have boosters that return to where they launched from, and if they didn't return to where they launched from we wouldn't have learned that geez if you reuse a used booster, the insurance cost of that relaunch is actually cheaper than the first launch because they know it works. And so, what brought down significantly launch costs, brought down further as we experienced it on things that we weren't even looking for. The way this Committee looks at it, that's savings that we're able to pump back into big or small platforms, to push research and development of technologies.

My parting comment to you is this: Be a leader.

I think you will be. Challenge the great talent that's at NRO to perform better, to have more partnerships, not just to rely on a contractor to put the array of new technologies out and say: here's the buffet, pick what you want. Listen to your customers and search through every means possible to see what technologies are out there, if just reconfigured in a different way might better fit the needs versus just what you're being offered.

I think Senator King hit on a very important thing. We have no choice. We have to be faster. We have to concentrate more on providing the technologies that provide the customers the products that they need. I will tell you that as a Committee we realize that with a faster pace brings a higher level of risk.

The challenging thing for us is that we're transitioning but we still look at life expectancies that far exceed the technology that's hanging on the platform. And it's time that we get the platform design life in sync with what is a scheduled technological change in what we've got the capabilities to do. That's a transition that can only take somebody that's been in a role like you've been in. So, I personally look forward to the leadership and the challenges that you will challenge the workforce to, because I think they are incredibly talented and will meet whatever expectations you set for them.

So, let me say you have the full support of this Committee. We'll expedite your nomination as quickly as we possibly can. My hope is that we can take it up on the floor as quickly as we report it, and I'll count on the members of this Committee to push that. We'd like to have you there tomorrow if we could. It's not going to work quite that fast.

I will apologize once again to your family: if you thought he kept long hours before, they're going to be longer now—and take a snapshot because his hair will be gray in a couple of years. And they will be well earned.

Thank you for your willingness to do this.

This hearing is adjourned.

Dr. SCOLESE. Thank you, Sir.

[Whereupon at 10:07 a.m. the hearing was adjourned.]

Supplemental Material

SELECT COMMITTEE ON INTELLIGENCE

UNITED STATES SENATE

QUESTIONNAIRE FOR COMPLETION BY PRESIDENTIAL NOMINEES

SELECT COMMITTEE ON INTELLIGENCE
UNITED STATES SENATE

QUESTIONNAIRE FOR COMPLETION BY PRESIDENTIAL NOMINEES

PART A - BIOGRAPHICAL INFORMATION

1. FULL NAME: Christopher Jon Scolese
   OTHER NAMES USED: N/A

2. DATE AND PLACE OF BIRTH: 21 July 1956; Buffalo, NY
   CITIZENSHIP: USA

3. MARITAL STATUS: Married

4. SPOUSE'S NAME: Dianne Cecilia Scolese

5. SPOUSE'S MAIDEN NAME IF APPLICABLE: Dianne Cecilia Bojan

6. NAMES AND AGES OF CHILDREN:

NAME	AGE
INFORMATION REDACTED	

7. EDUCATION SINCE HIGH SCHOOL:

INSTITUTION	DATES ATTENDED	DEGREE RECEIVED	DATE OF DEGREE
George Washington University	2010-2016 (1983-1987 PhD coursework)	PhD Systems Engineering	2016
Maxwell School Syracuse University	2003	Leadership Certificate	2003
George Washington University	1979-1983	MS Electrical and Computer Engineering	1983
Bettis Reactor Engineering School	1979	Nuclear Engineering Certificate	1979
State University of New York at Buffalo	1974-1978	BS Electrical and Computer Engineering	1978

8. EMPLOYMENT RECORD (LIST ALL POSITIONS HELD SINCE COLLEGE, INCLUDING MILITARY SERVICE. INDICATE NAME OF EMPLOYER, POSITION, TITLE OR DESCRIPTION, LOCATION, AND DATES OF EMPLOYMENT).

EMPLOYER	POSITION/TITLE	LOCATION	DATES
U. S. Navy (Active Duty)	Ensign-LT	Various	1978 – 1983
U. S. Navy Reserve (active and Inactive)	LT	Crystal City, VA	1983- 1991
DoD USN	GS 13-14 Engineer	Crystal City, VA	1983 – 1986
General Research Corporation	Senior Analyst	Tysons Corner, VA	1986 – 1987
NASA Goddard Space Flight Center	GS 14-SES Engineer Systems Manager (Chief Engineer) Project Manager Director of Earth Science Missions Deputy Director of Flight Projects	Greenbelt, MD	1987 - 2001
Deputy AA Space Science NASA HQ	SES	Washington, DC	2001 – 2004
Deputy Director NASA GSFC	SES	Greenbelt, MD	2004 – 2005
Chief Engineer NASA	SES	Washington, DC	2005 – 2007
Administrator (Acting) NASA	SES	Washington, DC	2009
Associate Administrator NASA HQ	SES	Washington, DC	2007 to 2012
Director NASA Goddard Space Flight Center	SES	Greenbelt, MD	2012 – Present

9. GOVERNMENT EXPERIENCE (INDICATE EXPERIENCE IN OR ASSOCIATION WITH FEDERAL, STATE, OR LOCAL GOVERNMENTS, INCLUDING ADVISORY, CONSULTATIVE, HONORARY, OR OTHER PART-TIME SERVICE OR POSITION. DO NOT REPEAT INFORMATION ALREADY PROVIDED IN QUESTION 8).

I served in an advisory capacity as part of my official government duties providing reviews and recommendations for other government agency programs, which included programs at the NRO, DoD, USAF, DOE, DHS, and USGS.

10. INDICATE ANY SPECIALIZED INTELLIGENCE OR NATIONAL SECURITY EXPERTISE YOU HAVE ACQUIRED HAVING SERVED IN THE POSITIONS DESCRIBED IN QUESTIONS 8 AND/OR 9

The majority of my 40 plus year career has been designing, acquiring, launching and operating space systems at NASA. My experience in acquisition, development and test is related to space systems, observation of the Earth and its environment, nuclear systems, nuclear weapons, analysis of products from satellites, data systems development and operation, and facility management. I have served in an advisory capacity on the development of NRO systems and technologies.

11 HONORS AND AWARDS (PROVIDE INFORMATION ON SCHOLARSHIPS, FELLOWSHIPS, HONORARY DEGREES, MILITARY DECORATIONS, CIVILIAN SERVICE CITATIONS, OR ANY OTHER SPECIAL RECOGNITION FOR OUTSTANDING PERFORMANCE OR ACHIEVEMENT).

HONORS/AWARDS	DATE	RECOGNITION
Recipient of the 2018 AIAA Von Kármán Award	**2018**	**The American Institute of Aeronautics and Astronautics (AIAA) award honoring Theodore von Kármán, world famous authority on aerospace sciences, the von Kármán Lecture in Astronautics Award recognizes an individual who has performed notably and distinguished himself technically in the field of astronautics.**
Elected to George Washington University School of Engineering Hall of Fame	**2015**	**The GW Engineering Hall of Fame was established in 2006 to recognize and honor distinguished SEAS alumni, faculty, staff, and friends who have contributed to engineering, technology, or management in a sustained and significant way during their careers. These are individuals who bring distinction to GW through their achievements and their contributions to their professions, the University, and society-at-large.**
Honorary PhD – Science: State University of New York at Buffalo	**2015**	
American Institute of Aeronautics and Astronautics National Capital Section Barry Goldwater Educator Award	**2015**	**The American Institute of Aeronautics and Astronautics (AIAA) National Capital**

		Section's highest award is the Barry Goldwater Educator Award, presented annually to an individual of national stature supporting the advancement of technology education.
Electrical Engineering Distinguished Graduate: State University of New York at Buffalo	2014	
NASA Distinguished Service Medal	2009	The NASA Distinguished Service Medal is the highest award which may be bestowed by the NASA. Awarded this medal for his leadership of the Agency during the transition.
State University of New York at Buffalo	2007	Clifford C. Furnas Memorial Award It was the intent of the late Mrs. Furnas that this award be presented annually to a graduate of the School of Engineering and Applied Sciences, or a graduate in one of the natural sciences or mathematics disciplines within the College of Arts and Sciences, who has distinguished himself/herself in a field of science, thereby bringing honor to the university.
American Institute of Aeronautics and Astronautics Space Systems Award	2006	Awarded to the Earth Observing System Team
Presidential Rank Award—Meritorious Executive	2006	Presidential Rank Award of Meritorious Executive Awarded to an SES in the U.S. Government for sustained superior performance in management of programs of the United States Government and for achievement in the public service
NASA Goddard Exceptional Team Achievement Award	2005	Earth Observing System (EOS) Aura
NASA Outstanding Leadership Medal	2000	Leadership of EOS Terra and recovery of ESDIS
Presidential Rank Award—Meritorious Executive	2000	Presidential Rank Award of Meritorious Executive Awarded to an SES in the U.S. Government for sustained superior performance in management of programs of the United States Government and for achievement in the public service
Society for Technical Communication	2000	Best of Show for the NASA Earth Observatory Web Site

American Society for Photogrammetry and Remote Sensing	1996	Certificate of Appreciation for Meritorious Service
Strathmore's Who's Who	1996	Strathmore's Who's Who publishes an annual two thousand page hard cover biographical registry, honoring successful individuals in the fields of Business, the Arts and Sciences, Law, Engineering and Government.
NASA Outstanding Leadership Medal	1993	Leadership of EOS Restructuring
NASA	1989 to present	Several Outstanding Teamwork Awards
NASA Goddard Space Flight Center	1989 to present	Several Group Achievement awards
AIAA National Capital Section	1986	Young Engineer/Scientist Award This is the premier award for scientists and engineers under the age of 35 who have made substantial contributions in their field of expertise.
Tau Beta Pi	1977	National Engineering Honor Society
Eta Kappa Nu	1977	Electrical Engineering Honor Society
New York State Regents Scholarship	1974	
New York State Science Fair	1973	Honor Award For a project on the ballistics of model rockets
Western New York Science Fair	1973	Highest Honors For a project on the ballistics of model rockets
Calspan	1973	Aerospace Award For a project on the ballistics of model rockets

12. ORGANIZATIONAL AFFILIATIONS (LIST MEMBERSHIPS IN AND OFFICES HELD WITHIN THE LAST TEN YEARS IN ANY PROFESSIONAL, CIVIC, FRATERNAL, BUSINESS, SCHOLARLY, CULTURAL, CHARITABLE, OR OTHER SIMILAR ORGANIZATIONS).

ORGANIZATION	OFFICE HELD	DATES
American Institute of Aeronautics and Astronautics	Fellow	Appx. 1972-Present
Institute of Electrical and Electronic Engineers	Member	1974-Present
Tau Beta Pi	National Engineering Honor Society	1977
Eta Kappa Nu	Electrical Engineering Honor Society	1977
Knights of Columbus	Member	1995-Present
State University of New York at Buffalo	Member of the Electrical Engineering Advisory Board	2013-Present

George Washington University	Member of the System Engineering Advisory Board	2015-Present

13. PUBLISHED WRITINGS AND SPEECHES (LIST THE TITLES, PUBLISHERS, BLOGS AND PUBLICATION DATES OF ANY BOOKS, ARTICLES, REPORTS, OR OTHER PUBLISHED MATERIALS YOU HAVE AUTHORED. ALSO LIST ANY PUBLIC SPEECHES OR REMARKS YOU HAVE MADE WITHIN THE LAST TEN YEARS FOR WHICH THERE IS A TEXT, TRANSCRIPT, OR VIDEO). IF ASKED, WILL YOU PROVIDE A COPY OF EACH REQUESTED PUBLICATION, TEXT, TRANSCRIPT, OR VIDEO?

Yes, to the extent they are published and available. The below list of publications, speeches and presentations is complete to the best of my knowledge.

Published Writings (Books, Articles, Reports, Papers):

"EOS Mission Platform Sizing Study (A Conceptual Design Approach)." C. Scolese, F. Bordi. National Aeronautics and Space Administration (NASA), May 1990

"Field of View Location and Formation Flying for Polar Orbiting Missions." C. Scolese, D. Folta, and F. Bordi. American Astronautical Society 91-170, April 1991

"Considerations on Formation Flying Separations for Earth Observing Satellite Missions." D. Folta, F. Bordi, and C. Scolese. American Astronautical Society 92-144; American Astronautical Society / American Institute of Aeronautics and Astronautics Spaceflight Mechanics Meeting, Colorado Springs, CO, February 1992

"The Earth Observing System's Space Measurement System." C. Scolese, M. Donohoe, and F. Bordi. 43rd International Astronautical Congress, IAF-92-0748, Washington, DC, August 28-September 5, 1992

"Measurement Strategies for the Earth Observing System." C. Scolese, F. Bordi, D. Folta, and J. Bolek. COSPAR A.8-M.1.04 XXIX COSPAR PLENARY MEETING, Washington, DC, August 28-September 5, 1992

"Mission to Planet Earth: The EOS Space Segment." F. Bordi, C. Scolese, M. Donohoe, and J. Dalton. 43rd International Astronautical Congress, Washington, DC, August 28-September 5, 1992

"The Earth Observing System: The EOS-AM Mission." C. Scolese and F. Bordi. 43rd International Astronautical Congress, Washington, DC, August 28-September 5, 1992

"Scientific Requirements and Mission Design: The EOS Experience." C. Scolese and F. Bordi. 44th International Astronautical Congress, IAF-93-H.3.201, Graz, Austria, October 16 - 22, 1993

"EOS-AM1: The First Spacecraft in the Earth Observing System." C. Scolese and F. Bordi. IAF-94- B.2. 076, 45th International Astronautical Congress, Jerusalem, Israel, Oct 9--14, 1994

"EOS-AM1: Current Status." F. Bordi, S. Neeck, and C. Scolese. Proceedings of The International Society for Optics and Photonics, January 1995

"Earth Remote Sensing Mission Design Process: EOS-AM2, A Case Study." F. Bordi, S. Neeck, C. Scolese, W. Stoney, R. Taylor, and P. Westmeyer. Presented at the European Symposium on Satellite Remote Sensing II, Paris, France, September 25-28, 1995

"EOS-AM1: Project Update." F. Bordi, S. Neeck, and C. Scolese. Proceedings of The International Society for Optics and Photonics, Bellingham, WA, December 1995

"EOS-AM2: A Design Update." F. Bordi, S. Neeck, C. Scolese, R. Taylor, and P. Westmeyer. Europto, Satellite Remote Sensing III, Taormina, Italy, September 1996

"EOS-AM1-L-2." F. Bordi, S. Neeck, and C. Scolese. Proceedings of The International Society for Optics and Photonics, Bellingham, WA, December 1996

"EOS Follow-on Missions: Near-term." F. Bordi, S. Neeck, C. Scolese, and R. Taylor. Presented at the European Symposium on Aerospace Remote Sensing, London, United Kingdom, September 22-26, 1997

"Future Mission Concepts for Land Change / Use Research." F. Bordi, S. Neeck, C. Scolese, and R. Taylor. Presented at the European Symposium on Aerospace Remote Sensing, London, United Kingdom, September 22-26, 1997

"EOS-AM1: Launch-9 Months." S. Neeck, C. Scolese, and F. Bordi. European Symposium on Aerospace Remote Sensing III, London, United Kingdom, September 23, 1997

"EOS AM: Progress, Plans, and Promise." F. Bordi, C. Scolese, and S. Neeck. IAF-97-B.2.02 48th International Astronautical Congress, Turin, Italy, October 6-10, 1997

"EOS AM-1." S. Neeck, C. Scolese, and F. Bordi. European Symposium on Remote Sensing, Barcelona, Spain, September 21, 1998

"The Earth Observing System: Status of the First Series and Early Science Investigations." M. King and C. Scolese. 37th Goddard Memorial Symposium, American Astronautical Society, Greenbelt, MD, March 17, 1999

"Early Results from the EOS AM-1 Mission." F. Bordi, S. Neeck, and C. Scolese. 50th International Astronautical Congress, Amsterdam, Netherlands, October 4-8, 1999

"Contribution of EOS TERRA to Earth Sciences." F. Bordi, S. Neeck, and C. Scolese. European Symposium on Remote Sensing, Florence, Italy, September 20-24, 1999

"Overview of the TERRA Mission." C. Scolese and F. Bordi. Conference on Sensors, Systems, and Next Generation Satellites VI (Rs04), Barcelona, Spain, September 9, 2000

"An Overview of Earth Science Missions at the Goddard Space Flight Center." F. Bordi and C. Scolese. 52nd International Astronautical Congress, Toulouse, France, October 1-5, 2001

"Message from the Chief Engineer." C. Scolese. NASA's Academy Sharing Knowledge (ASK) Magazine, December 21, 2005

"Interview with Chris Scolese." C. Scolese. NASA's ASK Magazine, January 1, 2006

"Message from the Chief Engineer — Risk Management: Enabling the New Age of Exploration." C. Scolese. NASA's ASK Magazine, January 12, 2006

"Message from Chief Engineer: Defining Engineering Excellence." C. Scolese. NASA's ASK Magazine, February 8, 2006

"Message from Chief Engineer: Four Guiding Principles of Technical Excellence." C. Scolese. NASA's ASK Magazine, February 8, 2006

"Message from the Chief Engineer—Technical Excellence: Roles and Responsibilities." C. Scolese. NASA's ASK Magazine, February 24, 2006

"Message from the Chief Engineer: Engineering Philosophy." C. Scolese. NASA's ASK Magazine, March 17, 2006

"Message from the Chief Engineer: Technical Authority." C. Scolese. NASA's ASK Magazine, April 4, 2006

"Message from the Chief Engineer: The Technical Excellence Initiative." C. Scolese. NASA's ASK Magazine, May 10, 2006

"Message from the Chief Engineer: Building Systems Engineering Capability." C. Scolese. NASA's ASK Magazine, June 14, 2006

"Message from the Chief Engineer: A Risk-Based Development Approach." C. Scolese. NASA's ASK Magazine, July 20, 2006

"Message from the Chief Engineer: Dissenting Opinions." C. Scolese. NASA's ASK Magazine, August 4, 2006

"Message from the Chief Engineer: Cross-Institutional Programs and Projects." C. Scolese. NASA's ASK Magazine, August 31, 2006

"Message from the Chief Engineer: Management in a Technical Organization." C. Scolese. NASA's ASK Magazine, August 17, 2006

"Message from the Chief Engineer: The Significance of the Crew Exploration Vehicle." C. Scolese. NASA's ASK Magazine, September 20, 2006

"Message from the Chief Engineer: The Embodiment of Excellence." C. Scolese. NASA's ASK Magazine, November 3, 2006

"Message from the Chief Engineer: The Importance of Getting Our Hands Dirty." C. Scolese. NASA's Ask Magazine, January 12, 2007

"Message from the Chief Engineer —Project Management Challenge 2007—The Project Manager and the Chief Engineer: A Constructive Relationship." C. Scolese. NASA's ASK Magazine, February 23, 2007

"The NASA Mission and the Need for Engineering Excellence." C. Scolese. Ground System Architectures Workshop Conference, March 29, 2007

"Developing Engineering Excellence for Programs and Projects at NASA." C. Scolese. NASA's ASK Magazine, April 1, 2007

"Message from the Chief Engineer: Introducing NPRs 7120.5 and 7123.1." C. Scolese. NASA's Ask Magazine, May 29, 2007

"The Project Manager and the Chief Engineer: A Constructive Relationship." C. Scolese. Goddard Quality Symposium, May 18, 2007

"Message from the Chief Engineer: Technical Standards." C. Scolese. NASA's Ask Magazine, June 21, 2007

"A Solid Foundation for the Future: The Governance and Strategic Management Handbook." C. Scolese. NASA's ASK Magazine, Spring 2007

"Developing Engineering Excellence for Programs and Projects at NASA." C. Scolese. NASA's ASK Magazine, Spring 2007

"Design and Engineering in a Flat World." C. Scolese and J. Hoffman. The International Journal of Engineering Education (Volume 24, Number 2) 2008 ISSN 0949-149X

Applied Space Systems Engineering, Chapter 1—Space Systems Engineering, D. Schlable, C. Scolese, M. Ryschkewitsch, D. Verma, and W. Larson. Edited by Larson, Kirkpatrick, Sellers, Thomas, and Verma. McGraw Hill, 2009

"Guest Interview—Christopher J. Scolese." C. Scolese. ISO Focus+, October 2011

"Profile—Christopher Scolese—Director, NASA Goddard Space Flight Center." C. Scolese. Space News, September 26, 2012

"Explanation of Change Study: Approach and Findings." R. Bitten, D. Emmons, F. Bordi, and C. Scolese. 2013 Institute of Electrical and Electronics Engineers Conference, March 2-8, 2013

"Explanation of Change Study: Considerations and Implementation Challenges." R. Bitten, D. Emmons, F. Bordi, M. Hart, C. Scolese, and N. Hinners. 2013 Institute of Electrical and Electronics Engineers Conference, March 2-8, 2013

"Improved Definition for Use of Risk Matrices in Project Development." C. Scolese. Dissertation submitted to The Faculty of The School of Engineering and Applied Science of The George Washington University, May 18, 2015

"A New Approach to Mission Classification and Risk Management for NASA Space Flight Missions." F. Bordi and C. Scolese. 2018 International Astronomical Conference, March 3-9, 2018

"The Value of the Risk Management Process." R. Dillon, G. Klein, Jr., E. Rogers, and C. Scolese. 2018 Institute of Electrical and Electronics Engineers Aerospace Conference, March 3-9, 2018

Significant Presentations and Speeches:

NASA: The Need for Technical Excellence, C. Scolese. Invited Lecture State University of New York at Buffalo, Buffalo, New York, Spring 2006

Lessons from Apollo, C. Scolese. Military and Aerospace Programmable Logic Devices, September 25, 2006

Design Engineering Education and Space Exploration in a Flat World, C. Scolese. Harvey Mudd College, Los Angeles, California, May 23, 2007

The Project Manager and the Chief Engineer: A Constructive Relationship, C. Scolese. Project Management Challenge 2007, Galveston, TX, February 7, 2007

The NASA Mission and the Need for Engineering Excellence, C. Scolese. Ground System Architectures Workshop Conference, March 29, 2007

The Project Manager and the Chief Engineer: A Constructive Relationship, C. Scolese. Goddard Quality Symposium, May 18, 2007

Engineering Challenges for the NASA Exploration Mission, C. Scolese. NASA, August 21, 2007

Eyes on the Earth: Past, Present and Future, C. Scolese. Association of Aeronautics and Astronautics National Capital Section, January 17, 2008

Keynote on "Sustainable Space Exploration," C. Scolese. 47th Robert H. Goddard Memorial Symposium, March 12, 2009

The Importance of Project Leadership at NASA, C. Scolese. NASA, June 26, 2009

Measurement in Earth Observing Systems, C. Scolese. Association for Aeronautics and Astronautics, September 21, 2009

Flexible Response: Working with Industry, Academic, and International Partners, C. Scolese. NASA, October 21, 2009

5th Appleton Lecture: NASA's Plans for Exploring the Moon & Mars, C. Scolese. 5th Appleton Space Conference, Rutherford Appleton Laboratory, December 10, 2009

Grand Challenges and Space Exploration, C. Scolese. University of Buffalo Amherst Campus, Buffalo, New York, March 10, 2010

Space Exploration and Risk, C. Scolese. Space Systems Risk Management Symposium, April 7, 2010

Design Engineering Education and Space Exploration in a Flat World, C. Scolese. Harvey Mudd College, Los Angeles, CA, May 23, 2010

Eyes on the Sun: 2010 Space Weather Enterprise Forum, C. Scolese. NASA, June 8, 2010

Eyes on the Earth: Past, Present and Future, C. Scolese. Giant Leaps Symposium, MIT Draper Laboratory, Boston, MA, June 10, 2010

Observing Earth from Space: Status, Challenges and Opportunities, C. Scolese. MIT Draper Laboratory, Boston, MA, October 21, 2010

NASA Today: Delivering Results, C. Scolese. American Astronomical Society 3rd Wernher von Braun Memorial Symposium 21st Century Approaches to the Use and Development of Space, October 27, 2010

Invited Talk—Mission Assurance in a Cost Constrained Environment, C. Scolese. 2011 Mission Assurance Improvement Workshop, May 6, 2011

Commencement Speech to the Graduating Class of Cleveland Hill High School, C. Scolese. Cheektowaga, NY, June 25, 2011

Keynote: From Ideas to Impact, C. Scolese. American Astronomical Society 4th Wernher von Braun Symposium, October 25, 2011

Facilitate Mission Success through Knowledge Sharing, C. Scolese. 2012 Mission Assurance Improvement Workshop Keynote, May 9, 2012

Presentation on NASA Goddard Space Flight Center Mission, C. Scolese. Maryland Department of Business & Economic Development's Environmental & Energy Sustainment Forum, May 14, 2012

Presentation on NASA Goddard Space Flight Center Mission, C. Scolese. Wallops Regional Partner's Quarterly, June 14, 2012

Remarks at "Aerospace@Annapolis", C. Scolese. NASA Goddard, in partnership with the AIAA National Capital Section, event at Maryland General Assembly, February 1, 2013

Remarks—Landsat 8 and The Criticality of Sustaining Operational Programs to Minimize the Risk of a Data Gap, C. Scolese. USGS-hosted Lunch & Learn on Capitol Hill, Washington, DC, May 10, 2013

Goddard Space Flight Center Overview, C. Scolese. American Institute of Aeronautics and Astronautics, September 19, 2013

Address to the Mission Assurance Improvement Workshop, C. Scolese. Mission Assurance Improvement Workshop, NASA, May 8, 2014

Address to the 42nd Aerospace Mechanism Symposium, C. Scolese. 42nd Aerospace Mechanism Symposium, May 14, 2014

Presentation—NASA Goddard Space Flight Center Leading the Way: Goddard in FY 15 and Beyond, C. Scolese. American Institute of Aeronautics and Astronautics National Capitol Section, October 23, 2014

A Personal Perspective on the Evolution of Program/Project Management at the Goddard Space Flight Center, C. Scolese. November 6, 2014

Presentation—Overview of the NASA Program/Project Activities, C. Scolese. National Academy of Sciences, July 21, 2015

Keynote—Data-Driven Mission Success Supply Chain 2016, C. Scolese. Supply Chain Conference NASA/Goddard Space Flight Center, Greenbelt, MD, August 30, 2016

Keynote at the University of Southern California (USC) / University of California, Los Angeles (UCLA) Navy Marine Birthday Ball, C. Scolese. USC/UCLA ROTC Los Angeles, CA, October 28, 2016

Improving the Use of Risk Matrices at NASA, R. Dillon, G. Klein, Jr., E. Rogers, and C. Scolese. 2017 Institute of Electrical and Electronics Engineers Aerospace Conference, March 4-11, 2017

Remarks—Highlights of Space Science Disciplines, C. Scolese. Space Transportation Association Lunch, September 8, 2017

Presentations and/or Remarks on NASA Goddard Space Flight Center Mission, C. Scolese. Greenbelt City Council & Greenbelt Business Roundtable, multiple occasions—April 23, 2012; June 19, 2012; February 4, 2013; August 24, 2016; and March 29, 2017

Keynote, Bucks County Pennsylvania Chamber of Commerce Luncheon, C. Scolese. December 1, 2017

Presentations and/or Remarks on NASA Goddard Space Flight Center Mission, C. Scolese. Maryland Space Business Roundtable, multiple occasions—April 27, 2012; September 19, 2012; July 23, 2013; September 29, 2014; March 29, 2016; and July 26, 2018

Presentations and/or Remarks on Introducing Speakers at the Goddard Memorial Symposium, C. Scolese. Multiple occasions—March 21-22, 2013; March 5-6, 2014; March 11-12, 2015; March 9-10, 2016; March 8-9, 2017; and March 14-15, 2018

Remarks at National Air & Space Museum, Annual Event hosted by Maryland Business Roundtable, C. Scolese. Multiple occasions—September 19, 2012; September 25, 2013; September 10, 2014; September 23, 2015; September 21, 2016; October 4, 2017; and October 3, 2018

Presentation--Fins to Computers, C. Scolese. Cleveland Hill High School, Cheektowaga, NY, October 5, 2018

Presentation—Discussion of NASA Missions, C. Scolese. State University of New York at Buffalo School of Engineering, Buffalo, NY, October 5, 2018

Congressional Testimony:

NASA's progress in managing the cost and schedule of the Agency's projects, C. Scolese, NASA Administrator (Acting). Before the Subcommittee on Space and Aeronautics Committee on Science and Technology, U.S. House of Representatives, March 5, 2009

President's FY2010 Budget for NASA, C. Scolese, NASA Administrator (Acting). Before the Subcommittee on Commerce, Justice, Science and Related Agencies Committee on Appropriations, U.S. House of Representatives, April 29, 2009

President's FY2010 Budget for NASA, C. Scolese, NASA Administrator (Acting). Before the U.S. House of Representatives Committee on Science and Technology, U.S. House of Representatives, May 19, 2009

President's FY2010 Budget for NASA, C. Scolese, NASA Administrator (Acting). Before the Senate Subcommittee on Science and Space, U.S. Senate, May 21, 2009

President's FY2010 Budget for NASA, C. Scolese, NASA Administrator (Acting). Before the Senate Subcommittee on Appropriations for Commerce, Justice, and Science, U.S. Senate, May 21, 2009

Setting New Courses for Polar Weather Satellites and Earth Observations, C. Scolese, NASA Associate Administrator. U.S. House of Representatives Committee on Science and Technology Subcommittee on Investigations and Oversight, U.S. House of Representatives, July 27, 2010

Polar Weather Satellite Program Progress and Plans, C. Scolese, NASA Associate Administrator. Joint Hearing Before the Subcommittee on Investigations and Oversight and Subcommittee on Energy and Environment Committee on Science, Space, and Technology. U.S. House of Representatives, September 23, 2012

PART B - QUALIFICATIONS

14. QUALIFICATIONS (DESCRIBE WHY YOU BELIEVE YOU ARE QUALIFIED TO SERVE AS THE DIRECTOR OF THE NATIONAL RECONNAISSANCE OFFICE).

Throughout my 40 year career, I have been involved in the acquisition, development, and test of complex systems that have been used in submarines, nuclear systems, missile defense, Earth observation satellites, human and robotic space missions in and beyond low Earth orbit, data systems, and communications systems, all of which are related to aspects of the National Reconnaissance Office (NRO) mission. Further, I have significant experience in the acquisition, development, test, and operation of complex space and ground systems used by NASA as well as other organizations. During my tenure at NASA, I have worked with NOAA, USGS, USAF, NRO, DoD, DOE, commercial and university organizations; my collaboration with each of these organizations provided me with valuable insights into space acquisition, program management, and operations best practices that would be applicable to the mission of the NRO. As a leader of organizations at NASA, I have significant experience in many areas with direct relevance to NRO mission accomplishment. This includes work to develop new technologies for small and large scale applications, from components and software that improved capabilities, to more complex CubeSats and large space systems. My efforts have directly contributed to the creation of multiple ground systems. These include small, agile ground systems to large ground systems that acquire and process data for a diverse user community. My efforts on large

ground systems include the development and evolution of the Earth Observing System (EOS) Data and Information System, as well as recovery and development of the Joint Polar Satellite System (JPSS) ground system. Over the last 20 years, I have held positions in which I have been responsible for the oversight and integration of NASA's programmatic and technical efforts to ensure the successful accomplishment of the Agency's overall mission, as well as leading the development, design, and implementation of the nation's civil space program. Currently, I have responsibility for scientific and programmatic management of the Nation's largest organization of combined scientists and engineers focused on the exploration of Earth, the solar system, and the universe. I believe my experience aligns well with the NRO's mission to develop, acquire, launch and operate our nation's intelligence satellites.

Given the technical, acquisition, and partnership experience described above, I believe I have the technical expertise, substantive knowledge, and leadership ability to serve as the Director of the NRO.

PART C - POLITICAL AND FOREIGN AFFILIATIONS

15. POLITICAL ACTIVITIES (LIST ANY MEMBERSHIPS OR OFFICES HELD IN OR FINANCIAL CONTRIBUTIONS OR SERVICES RENDERED TO, ANY POLITICAL PARTY, ELECTION COMMITTEE, POLITICAL ACTION COMMITTEE, OR INDIVIDUAL CANDIDATE DURING THE LAST TEN YEARS).

    None

16. CANDIDACY FOR PUBLIC OFFICE (FURNISH DETAILS OF ANY CANDIDACY FOR ELECTIVE PUBLIC OFFICE).

    None

17. FOREIGN AFFILIATIONS

    (NOTE: QUESTIONS 17A AND B ARE NOT LIMITED TO RELATIONSHIPS REQUIRING REGISTRATION UNDER THE FOREIGN AGENTS REGISTRATION ACT. QUESTIONS 17A, B, AND C DO NOT CALL FOR A POSITIVE RESPONSE IF THE REPRESENTATION OR TRANSACTION WAS AUTHORIZED BY THE UNITED STATES GOVERNMENT IN CONNECTION WITH YOUR OR YOUR SPOUSE'S EMPLOYMENT IN GOVERNMENT SERVICE.)

    A. HAVE YOU OR YOUR SPOUSE EVER REPRESENTED IN ANY CAPACITY (E.G. EMPLOYEE, ATTORNEY, OR POLITICAL/BUSINESS CONSULTANT), WITH OR WITHOUT COMPENSATION, A FOREIGN GOVERNMENT OR AN ENTITY CONTROLLED BY A FOREIGN GOVERNMENT? IF SO, PLEASE FULLY DESCRIBE SUCH RELATIONSHIP.

    No

    B. HAVE ANY OF YOUR OR YOUR SPOUSE'S ASSOCIATES REPRESENTED, IN ANY CAPACITY, WITH OR WITHOUT COMPENSATION, A FOREIGN GOVERNMENT OR AN ENTITY CONTROLLED BY A FOREIGN GOVERNMENT? IF SO, PLEASE FULLY DESCRIBE SUCH RELATIONSHIP.

    No

    C. DURING THE PAST TEN YEARS, HAVE YOU OR YOUR SPOUSE RECEIVED ANY COMPENSATION FROM, OR BEEN INVOLVED IN ANY FINANCIAL OR BUSINESS TRANSACTIONS WITH, A FOREIGN GOVERNMENT OR ANY ENTITY CONTROLLED BY A FOREIGN GOVERNMENT? IF SO, PLEASE PROVIDE DETAILS.

    No

D. HAVE YOU OR YOUR SPOUSE EVER REGISTERED UNDER THE FOREIGN AGENTS REGISTRATION ACT? IF SO, PLEASE PROVIDE DETAILS.

No

18. DESCRIBE ANY LOBBYING ACTIVITY DURING THE PAST TEN YEARS, OTHER THAN IN AN OFFICIAL U.S. GOVERNMENT CAPACITY, IN WHICH YOU OR YOUR SPOUSE HAVE ENGAGED FOR THE PURPOSE OF DIRECTLY OR INDIRECTLY INFLUENCING THE PASSAGE, DEFEAT, OR MODIFICATION OF FEDERAL LEGISLATION, OR FOR THE PURPOSE OF AFFECTING THE ADMINISTRATION AND EXECUTION OF FEDERAL LAW OR PUBLIC POLICY.

None

PART D - FINANCIAL DISCLOSURE AND CONFLICT OF INTEREST

19. DESCRIBE ANY EMPLOYMENT, BUSINESS RELATIONSHIP, FINANCIAL TRANSACTION, INVESTMENT, ASSOCIATION, OR ACTIVITY (INCLUDING, BUT NOT LIMITED TO, DEALINGS WITH THE FEDERAL GOVERNMENT ON YOUR OWN BEHALF OR ON BEHALF OF A CLIENT), WHICH COULD CREATE, OR APPEAR TO CREATE, A CONFLICT OF INTEREST IN THE POSITION TO WHICH YOU HAVE BEEN NOMINATED.

None

20. DO YOU INTEND TO SEVER ALL BUSINESS CONNECTIONS WITH YOUR PRESENT EMPLOYERS, FIRMS, BUSINESS ASSOCIATES AND/OR PARTNERSHIPS, OR OTHER ORGANIZATIONS IN THE EVENT THAT YOU ARE CONFIRMED BY THE SENATE? IF NOT, PLEASE EXPLAIN.

I have no outside business relationships beyond my official duties as a federal employee.

21. DESCRIBE THE FINANCIAL ARRANGEMENTS YOU HAVE MADE OR PLAN TO MAKE, IF YOU ARE CONFIRMED, IN CONNECTION WITH SEVERANCE FROM YOUR CURRENT POSITION. PLEASE INCLUDE SEVERANCE PAY, PENSION RIGHTS, STOCK OPTIONS, DEFERRED INCOME ARRANGEMENTS, AND ANY AND ALL COMPENSATION THAT WILL OR MIGHT BE RECEIVED IN THE FUTURE AS A RESULT OF YOUR CURRENT BUSINESS OR PROFESSIONAL RELATIONSHIPS.

N/A

22. DO YOU HAVE ANY PLANS, COMMITMENTS, OR AGREEMENTS TO PURSUE OUTSIDE EMPLOYMENT, WITH OR WITHOUT COMPENSATION, DURING YOUR SERVICE WITH THE GOVERNMENT? IF SO, PLEASE PROVIDE DETAILS.

No

23. AS FAR AS CAN BE FORESEEN, STATE YOUR PLANS AFTER COMPLETING GOVERNMENT SERVICE. PLEASE SPECIFICALLY DESCRIBE ANY AGREEMENTS OR UNDERSTANDINGS, WRITTEN OR UNWRITTEN, CONCERNING EMPLOYMENT AFTER LEAVING GOVERNMENT SERVICE. IN PARTICULAR, DESCRIBE ANY AGREEMENTS, UNDERSTANDINGS, OR OPTIONS TO RETURN TO YOUR CURRENT POSITION.

I have no agreements with any organization or person for post-government employment. When I leave government service, I plan to retire and pursue an academic career to share the knowledge I have gained with future engineers and leaders.

24. IF YOU ARE PRESENTLY IN GOVERNMENT SERVICE, DURING THE PAST FIVE YEARS OF SUCH SERVICE, HAVE YOU RECEIVED FROM A PERSON OUTSIDE OF GOVERNMENT AN OFFER OR EXPRESSION OF INTEREST TO EMPLOY YOUR SERVICES AFTER YOU LEAVE GOVERNMENT SERVICE? IF YES, PLEASE PROVIDE DETAILS.

No

25. IS YOUR SPOUSE EMPLOYED? IF YES AND THE NATURE OF THIS EMPLOYMENT IS RELATED IN ANY WAY TO THE POSITION FOR WHICH YOU ARE SEEKING CONFIRMATION, PLEASE INDICATE YOUR SPOUSE'S EMPLOYER, THE POSITION, AND THE LENGTH OF TIME THE POSITION HAS BEEN HELD. IF YOUR SPOUSE'S EMPLOYMENT IS NOT RELATED TO THE POSITION TO WHICH YOU HAVE BEEN NOMINATED, PLEASE SO STATE.

Spouse is not employed.

26. LIST BELOW ALL CORPORATIONS, PARTNERSHIPS, FOUNDATIONS, TRUSTS, OR OTHER ENTITIES TOWARD WHICH YOU OR YOUR SPOUSE HAVE FIDUCIARY OBLIGATIONS OR IN WHICH YOU OR YOUR SPOUSE HAVE HELD DIRECTORSHIPS OR OTHER POSITIONS OF TRUST DURING THE PAST FIVE YEARS.

INFORMATION REDACTED

27. LIST ALL GIFTS EXCEEDING $100 IN VALUE RECEIVED DURING THE PAST FIVE YEARS BY YOU, YOUR SPOUSE, OR YOUR DEPENDENTS. (NOTE: GIFTS RECEIVED FROM RELATIVES AND GIFTS GIVEN TO YOUR SPOUSE OR DEPENDENT NEED NOT BE INCLUDED UNLESS THE GIFT WAS GIVEN WITH YOUR KNOWLEDGE AND ACQUIESCENCE AND YOU HAD REASON TO BELIEVE THE GIFT WAS GIVEN BECAUSE OF YOUR OFFICIAL POSITION.)

Attendance at Robert H. Goddard Memorial Dinner hosted by the National Space Club and Foundation in 2014 and 2017 (for myself and my wife)

Attendance at American Institute of Aeronautics and Astronautics Spotlight Awards Dinner in 2014, 2015, and 2018 (for myself and my wife or daughter)

2015 Robert J. Collier Trophy Dinner hosted by the National Aeronautic Association for the award of the Collier Trophy to the NASA/JPL Dawn Team (for myself and wife)

28. LIST ALL SECURITIES, REAL PROPERTY, PARTNERSHIP INTERESTS, OR OTHER INVESTMENTS OR RECEIVABLES WITH A CURRENT MARKET VALUE (OR, IF MARKET VALUE IS NOT ASCERTAINABLE, ESTIMATED CURRENT FAIR VALUE) IN EXCESS OF $1,000. (NOTE: THE INFORMATION PROVIDED IN RESPONSE TO SCHEDULE A OF THE DISCLOSURE FORMS OF THE OFFICE OF GOVERNMENT ETHICS MAY BE INCORPORATED BY REFERENCE, PROVIDED THAT CURRENT VALUATIONS ARE USED.)

DESCRIPTION OF PROPERTY VALUE METHOD OF VALUATION

Please see my OGE-278e, which was completed using current valuations.

29. LIST ALL LOANS OR OTHER INDEBTEDNESS (INCLUDING ANY CONTINGENT LIABILITIES) IN EXCESS OF $10,000. EXCLUDE A MORTGAGE ON YOUR PERSONAL RESIDENCE UNLESS IT IS RENTED OUT, AND LOANS SECURED BY AUTOMOBILES, HOUSEHOLD FURNITURE, OR APPLIANCES. (NOTE: THE INFORMATION PROVIDED IN RESPONSE TO SCHEDULE C OF THE DISCLOSURE FORM OF THE OFFICE OF GOVERNMENT ETHICS MAY BE INCORPORATED BY REFERENCE, PROVIDED THAT CONTINGENT LIABILITIES ARE ALSO INCLUDED.)

NATURE OR OBLIGATION NAME OF OBLIGEE AMOUNT

Please see my OGE-278e. Contingent liabilities are included.

30. ARE YOU OR YOUR SPOUSE NOW IN DEFAULT ON ANY LOAN, DEBT, OR OTHER FINANCIAL OBLIGATION? HAVE YOU OR YOUR SPOUSE BEEN IN DEFAULT ON ANY LOAN, DEBT, OR OTHER FINANCIAL OBLIGATION IN THE PAST TEN YEARS? HAVE YOU OR YOUR SPOUSE EVER BEEN REFUSED CREDIT OR HAD A LOAN APPLICATION DENIED? IF THE ANSWER TO ANY OF THESE QUESTIONS IS YES, PLEASE PROVIDE DETAILS.

No

31. LIST THE SPECIFIC SOURCES AND AMOUNTS OF ALL INCOME RECEIVED DURING THE LAST FIVE YEARS, INCLUDING ALL SALARIES, FEES, DIVIDENDS, INTEREST, GIFTS, RENTS, ROYALTIES, PATENTS, HONORARIA, AND OTHER ITEMS EXCEEDING $200. (COPIES OF U.S. INCOME TAX RETURNS FOR THESE YEARS MAY BE SUBSTITUTED HERE, BUT THEIR SUBMISSION IS NOT REQUIRED.)

INFORMATION REDACTED

32. IF ASKED, WILL YOU PROVIDE THE COMMITTEE WITH COPIES OF YOUR AND YOUR SPOUSE'S FEDERAL INCOME TAX RETURNS FOR THE PAST THREE YEARS?

Yes

33. LIST ALL JURISDICTIONS IN WHICH YOU AND YOUR SPOUSE FILE ANNUAL INCOME TAX RETURNS.

Federal
Commonwealth of Virginia

34. HAVE YOUR FEDERAL OR STATE TAX RETURNS BEEN THE SUBJECT OF AN AUDIT, INVESTIGATION, OR INQUIRY AT ANY TIME? IF SO, PLEASE PROVIDE DETAILS, INCLUDING THE RESULT OF ANY SUCH PROCEEDING.

No

35. IF YOU ARE AN ATTORNEY, ACCOUNTANT, OR OTHER PROFESSIONAL, PLEASE LIST ALL CLIENTS AND CUSTOMERS WHOM YOU BILLED MORE THAN $200 WORTH OF SERVICES DURING THE PAST FIVE YEARS. ALSO, LIST ALL JURISDICTIONS IN WHICH YOU ARE LICENSED TO PRACTICE.

N/A

36. DO YOU INTEND TO PLACE YOUR FINANCIAL HOLDINGS AND THOSE OF YOUR SPOUSE AND DEPENDENT MEMBERS OF YOUR IMMEDIATE HOUSEHOLD IN A BLIND TRUST? IF YES, PLEASE FURNISH DETAILS. IF NO, DESCRIBE OTHER ARRANGEMENTS FOR AVOIDING ANY POTENTIAL CONFLICTS OF INTEREST.

I do not intend to place any of my or my spouse's financial holdings in a blind trust. If an actual or apparent conflicts of interests should arise, I will consult with my Designated Agency Ethics Official and take appropriate steps to mitigate or eliminate any actual or apparent conflicts of interests.

37. IF APPLICABLE, LIST THE LAST THREE YEARS OF ANNUAL FINANCIAL DISCLOSURE REPORTS YOU HAVE BEEN REQUIRED TO FILE WITH YOUR AGENCY, DEPARTMENT, OR BRANCH OF GOVERNMENT. IF ASKED, WILL YOU PROVIDE A COPY OF THESE REPORTS?

Yes. I have filed an OGE-278 for the last 3 years and will provide copies if requested.

PART E - ETHICAL MATTERS

38. HAVE YOU EVER BEEN THE SUBJECT OF A DISCIPLINARY PROCEEDING OR CITED FOR A BREACH OF ETHICS OR UNPROFESSIONAL CONDUCT BY, OR BEEN THE SUBJECT OF A COMPLAINT TO, ANY COURT, ADMINISTRATIVE AGENCY, PROFESSIONAL ASSOCIATION, DISCIPLINARY COMMITTEE, OR OTHER PROFESSIONAL GROUP? IF SO, PLEASE PROVIDE DETAILS.

No

39. HAVE YOU EVER BEEN INVESTIGATED, HELD, ARRESTED, OR CHARGED BY ANY FEDERAL, STATE, OR OTHER LAW ENFORCEMENT AUTHORITY FOR VIOLATION OF ANY FEDERAL STATE, COUNTY, OR MUNICIPAL LAW, REGULATION, OR ORDINANCE, OTHER THAN A MINOR TRAFFIC OFFENSE, OR NAMED AS A DEFENDANT OR OTHERWISE IN ANY INDICTMENT OR INFORMATION RELATING TO SUCH VIOLATION? IF SO, PLEASE PROVIDE DETAILS.

No

40. HAVE YOU EVER BEEN CONVICTED OF OR ENTERED A PLEA OF GUILTY OR NOLO CONTENDERE TO ANY CRIMINAL VIOLATION OTHER THAN A MINOR TRAFFIC OFFENSE? IF SO, PLEASE PROVIDE DETAILS.

No

41. ARE YOU PRESENTLY OR HAVE YOU EVER BEEN A PARTY IN INTEREST IN ANY ADMINISTRATIVE AGENCY PROCEEDING OR CIVIL LITIGATION? IF SO, PLEASE PROVIDE DETAILS.

No

42. HAVE YOU BEEN INTERVIEWED OR ASKED TO SUPPLY ANY INFORMATION AS A WITNESS OR OTHERWISE IN CONNECTION WITH ANY CONGRESSIONAL INVESTIGATION, FEDERAL, OR STATE AGENCY PROCEEDING, GRAND JURY INVESTIGATION, OR CRIMINAL OR CIVIL LITIGATION IN THE PAST TEN YEARS? IF SO, PLEASE PROVIDE DETAILS.

I have not been interviewed or asked to supply information for investigations, proceedings or litigation as enumerated in this question. As part of my official duties as a Federal Employee, I have provided testimony to Congress on multiple occasions. My Congressional testimony from the last 10 years is detailed in my response to Question 13 above.

43. HAS ANY BUSINESS OF WHICH YOU ARE OR WERE AN OFFICER, DIRECTOR, OR PARTNER BEEN A PARTY TO ANY ADMINISTRATIVE AGENCY PROCEEDING OR CRIMINAL OR CIVIL LITIGATION RELEVANT TO THE POSITION TO WHICH YOU HAVE BEEN NOMINATED? IF SO, PLEASE PROVIDE DETAILS. (WITH RESPECT TO A BUSINESS OF WHICH YOU ARE OR WERE AN OFFICER, YOU NEED ONLY CONSIDER PROCEEDINGS AND LITIGATION THAT OCCURRED WHILE YOU WERE AN OFFICER OF THAT BUSINESS.)

No

44. HAVE YOU EVER BEEN THE SUBJECT OF ANY INSPECTOR GENERAL INVESTIGATION? IF SO, PLEASE PROVIDE DETAILS.

No

PART F - SECURITY INFORMATION

45. HAVE YOU EVER BEEN DENIED ANY SECURITY CLEARANCE OR ACCESS TO CLASSIFIED INFORMATION FOR ANY REASON? IF YES, PLEASE EXPLAIN IN DETAIL.

No

46. HAVE YOU BEEN REQUIRED TO TAKE A POLYGRAPH EXAMINATION FOR ANY SECURITY CLEARANCE OR ACCESS TO CLASSIFIED INFORMATION? IF YES, PLEASE EXPLAIN.

Yes, as part of my official duties as NASA Chief Engineer and Associate Administrator.

47. HAVE YOU EVER REFUSED TO SUBMIT TO A POLYGRAPH EXAMINATION? IF YES, PLEASE EXPLAIN.

No

PART G - ADDITIONAL INFORMATION

48. DESCRIBE IN YOUR OWN WORDS THE CONCEPT OF CONGRESSIONAL OVERSIGHT OF U.S. INTELLIGENCE ACTIVITIES. IN PARTICULAR, CHARACTERIZE WHAT YOU BELIEVE TO BE THE OBLIGATIONS OF THE DIRECTOR OF THE NATIONAL RECONNAISSANCE OFFICE AND THE INTELLIGENCE COMMITTEES OF THE CONGRESS, RESPECTIVELY, IN THE OVERSIGHT PROCESS

Oversight and independent assessment in general is necessary for any organization to be successful and to validate its benefit to the greater community that it serves. Congressional oversight of intelligence activities is critical because the nature of intelligence activities and systems is not broadly available for review and scrutiny by the public as are other programs. Specifically, oversight is a fundamental role of the Congress and, in the case of intelligence programs, has been invested in the intelligence committees to review the programs, activities and budgets of the National Reconnaissance Office (NRO) as well as any other matter of interest.

The responsibility of the Director of the NRO is to provide timely and accurate information to the Congress. The Director of the NRO has a responsibility to keep the Congress "fully and currently" informed of ongoing and planned activities so that Congress can make fully informed legislative recommendations regarding programs, budgets and other matters which the committees consider appropriate and necessary.

49. EXPLAIN YOUR UNDERSTANDING OF THE RESPONSIBILITIES OF THE DIRECTOR OF THE NATIONAL RECONNAISSANCE OFFICE.

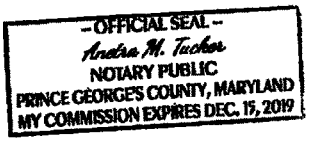
To quote the official responsibilities: "The Director of the NRO (D/NRO) is responsible the Secretary of Defense (SecDef) and Director of National Intelligence (DNI) for all national space and assigned airborne reconnaissance activities. The D/NRO provides top-level management direction to the NRO in response to SecDef and DNI requirements." To me this means that the Director is responsible to implement the direction and policies of the SecDef and DNI to provide space and airborne systems that are required to support the intelligence and defense needs of the United States. Importantly, this means that the D/NRO must develop a capable workforce, foster effective teams and partnerships internal to NRO and among many partners that the NRO supports, assure effective management of assigned activities, and report to the Congress, DNI, SecDef, and others as needed to ensure a common understanding of progress and challenges.

AFFIRMATION

I, CHRISTOPHER SCOLESE, DO SWEAR THAT THE ANSWERS I HAVE PROVIDED TO THIS QUESTIONNAIRE ARE ACCURATE AND COMPLETE.

February 27, 2019
(Date)

SIGNATURE OF CHRISTOPHER SCOLESE
Christopher Scolese



SIGNATURE OF NOTARY
(Notary)

TO THE CHAIRMAN, SELECT COMMITTEE ON INTELLIGENCE:

In connection with my nomination to be the Director of the National Reconnaissance Office, I hereby express my willingness to respond to requests to appear and testify before any duly constituted committee of the Senate.

SIGNATURE OF CHRISTOPHER SCOLESE
Signature

Date: February 27, 2019

SELECT COMMITTEE ON INTELLIGENCE

UNITED STATES SENATE

Additional Questions for
Dr. Christopher Scolese upon his nomination to be
Director of the National Reconnaissance Office

Responsibilities of the Director of the National Reconnaissance Office

The National Reconnaissance Office (NRO) was established as a joint Intelligence Community (IC) and Department of Defense (DoD) organization to develop, launch, and operate America's signals, imagery, and communications satellites to enable its IC mission partners to produce intelligence products for Congress, the Executive Branch, and the military.

QUESTION 1: What is your understanding of the unique role of the NRO within the IC?

From my understanding of the publicly available history of the National Reconnaissance Office (NRO), in September 1961, the Central Intelligence Agency (CIA) and Department of Defense (DoD) signed the first NRO Charter that established management arrangements for the National Reconnaissance Program. This consolidated many of America's national space and aerial reconnaissance projects under a covert, highly-compartmented National Reconnaissance Office. In 1992, the U.S. government declassified the "fact of" or existence of the NRO.

As a member of the Intelligence Community (IC) and as an element of the DoD, the NRO is organized and managed as a partnership between the Director of National Intelligence and the Secretary of Defense to meet their overhead intelligence requirements. The NRO mission is to develop, acquire, launch, and operate overhead reconnaissance systems and associated ground command and control, mission management, processing, and communications segments. The NRO maintains close partnerships across the IC and with defense and space-faring organizations, such as the National Security Agency, the CIA, the Defense Intelligence Agency, the National Geospatial-Intelligence Agency, Air Force Space Command, U. S. Strategic Command, and the National Aeronautics and Space Administration.

The NRO supports current operations with existing systems and plays a critical role in providing global situational awareness, including access to high-risk and denied areas. Working closely with its mission partners, the NRO provides policy makers, analysts, and warfighters timely access to high-value, multiple-intelligence fusion content. Using NRO data, NRO mission partners produce intelligence products for the President, Congress, national policy makers, and warfighters.

I certainly appreciate and value the criticality of this mission, and if confirmed, I will work to maintain and further strengthen the NRO's contributions to the IC, the DoD, and other key partners.

QUESTION 2: What is your understanding of the specific responsibilities of the Director of the NRO?

My understanding of the responsibilities of the Director of the National Reconnaissance Office (NRO) is to provide direction, guidance, and supervision over all matters pertaining to the NRO mission to develop, acquire, launch, and operate overhead reconnaissance systems and associated ground command and control, mission management, processing, and communications segments. Accordingly, the Director of the NRO is accountable for the day-to-day management of the NRO and the execution of its mission. To accomplish the NRO mission, the Director is authorized to establish strategic guidance, policy, and procedures for the execution of the NRO mission and the accomplishment of National Security Space responsibilities. Additionally, from my review of Executive Order 12333, as amended, and Department of Defense (DoD) Directive 5105.23, as of 29 October 2015, the Director of the NRO executes other authorities specifically delegated by the Director of National Intelligence (DNI) and Secretary of Defense (SecDef) and is responsible for:

- Managing and operating the NRO, its program activities, and acquisition of NRO systems, which includes developing a capable workforce, and fostering effective teams and partnerships internal to NRO;
- Serving as Principal Advisor to the DNI, SecDef, Chairman of the Joint Chiefs of Staff, DoD Combatant Commanders, and Secretary of the Air Force on overhead reconnaissance;
- Delivering intelligence, surveillance, and reconnaissance capabilities; and information products, services, and tools in coordination with the Functional Managers, as established by the DNI;
- Maintaining close, integral relationships and partnerships with Intelligence Community and DoD mission partners; and U.S. government agencies, departments, and entities with specific responsibility for overhead and space activities in peacetime and wartime; and
- Sharing responsibility for leading and managing the National Security Space community.

QUESTION 3: Have you discussed with Director Coats his specific future expectations of you, and his future expectations of the NRO as a whole? If so, please describe these expectations.

Yes, I spoke to both the Director of National Intelligence (DNI) and the Principal Deputy Director (PDDNI) about their expectations for the next Director of the National Reconnaissance Office (NRO). Their strong emphasis was to ensure continuity of mission, infuse technology (including artificial intelligence), increase the speed of delivery of data to the user community, and modernize the architecture. We also discussed the need to support the NRO Cadre with recruitment and training opportunities.

If confirmed, I look forward to working with the DNI, PDDNI, Secretary of Defense, and the Under Secretary of Defense for Intelligence on these initiatives.

QUESTION 4: Please describe any lessons you have drawn from the experiences of current and former Directors of the NRO.

The most important lessons shared with me were the need to collaborate with the Intelligence Community and Defense organizations so that the process—from requirements generation to implementation of systems—can be done effectively and efficiently. Another lesson is the need to communicate status updates to partner and sponsor organizations to avoid duplication and ensure a common understanding of progress and challenges.

NASA Experience

You have served over thirty years – since 1987 – at NASA and, for the last seven years, as director of NASA's Goddard Space Center.

QUESTION 5: If confirmed, how would you use your "outsider" perspective to the benefit of the NRO?

Throughout my career at the National Aeronautics and Space Administration (NASA), I have been involved in all aspects of space systems development, ground system design, launch operations, facilities management, and personnel management. This experience included involvement in the management and oversight of over 100 space missions in Earth orbit and beyond. These missions

addressed science, operational, and communication requirements and included all classes of satellites, from individual instruments on CubeSats to large missions with integrated constellations. Further, I was responsible for making difficult decisions on requirements, infusing technology effectively, building strong partnerships, and communicating progress on activities. Some specific examples include the redesign of the Earth Observing System and the development of the Earth Observing System Data and Information System. While the preponderance of my career has been outside the Intelligence and Defense communities, if confirmed, I believe my unique experiences at NASA directly correlate to the National Reconnaissance Office (NRO) mission. I will bring innovative approaches to the NRO mission and leverage best practices to enhance the NRO's intelligence collection mission, from satellite design through delivery of data to users.

The NASA and NRO missions are in many ways different, yet they are also similar. At a fundamental level, we share some of the same industrial base partners, launch systems, and at times, personnel. NASA missions are designed to address a specific set of requirements based upon prior scientific discoveries. Throughout my career, including in my current position as the Director of the Goddard Space Flight Center, I have sought to apply state-of-the-art technologies, combined with capabilities from industry, academia, and industrial partners, to ensure the most efficient use of resources to meet the NASA mission. Similarly, the NRO is responsive to intelligence requirements, and the fundamental principles of space system design and acquisition from my experience at NASA would also apply.

If confirmed, I believe that all of these experiences will benefit the NRO and will provide different perspectives and approaches to accomplishing the mission.

QUESTION 6: If confirmed, how would you seek to overcome challenges presented by your lack of IC experience?

I have deep expertise in developing and acquiring space systems at the National Aeronautics and Space Administration (NASA) that is directly relevant to the National Reconnaissance Office (NRO) mission, and I have served as an advisor on NRO programs. Similar to the mission of the NRO to support intelligence requirements, NASA and the Goddard Space Flight Center (GSFC) are charged with developing space and ground systems that are responsive to the user communities' requirements. To this end, GSFC and NRO use the same

components, vendors, and in some cases, systems, to accomplish their respective missions. NASA, GSFC, and the NRO often participate in common activities, such as the Space Collaboration Council, the Joint Missions Assurance Council, the Space Quality Improvement Council, and the Mission Assurance Improvement Workshop, all of which are intended to improve our performance and assure communication among the agencies and industry about common concerns and best practices.

Further, we work together in areas of critical importance, such as setting common standards for launch vehicles and looking at future capabilities. One example of this is the recent "Science and Technology Partnership Open Forum: Information Exchange for Market Analysis of Commercial In-Space Assembly Activities." The purpose of such joint forums is to coordinate efforts, especially in the areas of cutting edge technology, to achieve common goals more efficiently than could be accomplished by one organization alone. Often these activities result in community standards or new capabilities that improve reliability and resiliency.

QUESTION 7: As head of Goddard, you are responsible for many of NASA's major acquisition programs, to include the James Webb Space Telescope. In the most recent spending bill, Congress criticized NASA for "mismanagement, complete lack of careful oversight, and overall poor basic workmanship" on the James Webb Space Telescope. This project, whose costs have increased from $1 billion to nearly $9 billion, will be nearly a decade late when it finally launches in 2021.

Given NASA Goddard's struggle to keep the James Webb Space Telescope on schedule and on budget, what assurances can you provide to us that you have the management expertise to prevent similar cost and schedule overruns with NRO-managed acquisitions?

First, allow me to provide some context on the James Webb Space Telescope (JWST) mission. JWST represents a once-in-a-generation mission designed to accomplish complex scientific objectives that have been elusive for over three decades. At JWST's outset, the National Aeronautics and Space Administration (NASA) readily acknowledged that it was necessary to invent 10 new technologies to meet the demanding performance specifications necessary to accomplish the requirements. As an example, JWST must operate at temperatures of -387.7 degrees Fahrenheit (or 40 Kelvin), use a 6.5-meter diameter segmented

mirror, and be located more than 1 million miles from Earth. By comparison, JWST is expected to perform more than 100 times better than the Hubble.

While serving as the NASA Associate Administrator in 2009, I initiated a wide-scale review to address the technical, funding, and contractual items that were complicating several NASA missions. This review was called the "Explanation of Change," and it evaluated several past missions to determine the causes of issues and reviewed lessons learned from the Government Accountability Office and the NASA Inspector General reports, as well as past studies of space system development. Nine factors were identified as part of this review. Because JWST was initiated before this study was completed, it adopted the relevant aspects of these guidelines during its replan in the 2010-2011 timeframe. As a result, from 2011 until 2017, the JWST program performed within cost and schedule; the recent program challenges are primarily related to unanticipated manufacturing issues. These guidelines were applied to other Goddard Space Flight Center programs at their initiation and have been adopted as a best practice. As a result, nine of the last 12 missions developed by Goddard were delivered at, or below, the agreed to cost target. These guidelines are still in use today and have been adopted by other space acquisition organizations.

If confirmed, I will bring my experience in mission development, evaluation, and replanning to the National Reconnaissance Office (NRO) and will seek to apply these acquisition best practices and lessons learned to NRO acquisitions. Additionally, if confirmed, I will provide programmatic updates to Executive and Legislative Branch oversight committees as needed to ensure an informed dialogue and to allow for timely programmatic adjustments, before cost and schedule are impacted.

QUESTION 8: What lessons have you learned from your experiences managing Goddard's acquisition of the James Webb Space Telescope that you could apply to the NRO?

I learned many invaluable lessons from my time on the James Webb Space Telescope project, among the most notable, and likely to be applicable to the National Reconnaissance Office mission, include:

- Increase investments in research and development for new technologies to achieve a reasonable maturity level before establishing as a "program of record";
- Solidify and document requirements;

- Conduct a Joint Confidence Level-based estimate prior to approving the program and ensure the estimate accounts for development risks;
- Establish the program budget commensurate with cost and schedule risk and secure the proper funding profile; and
- Hold independent program reviews at critical milestones.

QUESTION 9: Goddard recently proposed changes to the Wide Field Infrared Survey Telescope (WFIRST) mission intended to reduce the spacecraft's projected cost and address issues about the technical maturity and risk of some elements. If confirmed, how would you apply lessons learned from your experience with the WFIRST mission to the NRO?

The most valuable lesson I learned from my experience with the Wide Field Infrared Survey Telescope (WFIRST) mission was the importance of clear and stable requirements. The WFIRST program adopted the guidelines that I developed as Chief Engineer that have allowed recent missions to perform at, or better than, expectations in terms of cost and schedule. The most important guidelines are to ensure that the requirements are clear and stable, risks to development are understood, and budgets are consistent with the requirements. The WFIRST program correctly identified that the budget profile and the technical requirements were not in alignment. To address this, I facilitated a review of the goals of the mission, which is still ongoing. If confirmed, I will bring this critical look at all aspects of program development to the National Reconnaissance Office (NRO) to determine if and when adjustments need to be made to ensure the NRO meets the needs of the user community.

QUESTION 10: A few months ago, NASA launched a number of CubeSats on a Rocket Lab rocket designed specifically for small payloads. Likewise, NRO has begun to embrace small satellites and is looking at small launch solutions. If confirmed, what would you do to help NRO continue along this path?

CubeSats, small, and medium satellites can provide a range of benefits, from quickly testing and space-qualifying technologies, to meeting or enhancing mission requirements. I also think that a mix of small, medium, and large satellites provides an increased capability to best meet the mission, allows for greater innovation, optimizes the architecture, and achieves resiliency. If confirmed, I would ensure that the National Reconnaissance Office (NRO) is weighing all architecture options against mission needs, recognizing that at times, requirements

may best be met using hybrid architectures comprised of both larger and smaller satellites.

From my experience at the National Aeronautics and Space Administration (NASA), mission requirements and physics largely drive the size of a satellite, telescope, or constellations of satellites. At Goddard I championed the use of CubeSats and small satellites. I supported the development of miniaturized instruments for use on CubeSats, identified missions best suited for small satellites, and modified policies to address the unique aspects of small satellites and CubeSats. The ability to manifest CubeSats and small satellites on a variety of launch platforms, along with their lower cost compared to larger satellites, has afforded the opportunity to more quickly space qualify technologies, train scientists and engineers, and allow for constellations of satellites. More recently, the combination of miniaturized instruments with CubeSats and the greater variety of launch platforms has demonstrated the ability to accomplish significant scientific goals.

Additionally, at the NASA Goddard Wallops Flight Facility, NASA personnel work closely with National Science Foundation-sponsored researchers to develop, manifest, and track nanosats and CubeSats for educational and outreach activities. These activities accomplish science goals while demonstrating new technologies and training the next generation of scientists and engineers. Further, NASA continues to work with the NRO on small satellite launches from Wallops.

QUESTION 11: NASA has many programs with new graduates and new ideas. This same pipeline has evaded the NRO for decades. How will you encourage a new generation of talent to embrace the NRO?

From my experience at the National Aeronautics and Space Administration (NASA), talent recruitment and workforce development are fundamental to the success of any organization. It is critical for a highly technical space agency to recruit and retain science, technology, engineering, arts, and math (STEAM) expertise. During my tenure at Goddard, I actively partnered with professional societies, high schools, colleges, and universities to educate students on the NASA mission and encourage students to pursue STEAM fields with an eye towards NASA and Goddard as ideal places to utilize their talent. I also encouraged Goddard personnel to visit schools and talk with students and faculty, championed partnerships with professional societies, and provided rewarding opportunities for interns. All of these activities, across all fields — from administration to science

PhDs — have resulted in a highly motivated and innovative workforce at NASA Goddard. Because of my dedication to inspiring and educating the next generation of explorers, I have worked to develop relationships with minority and underrepresented institutions. I have developed a strong recruitment program at Goddard that draws from an extremely diverse population and significantly leads NASA in minority intern recruitment. These efforts have ensured a healthy Center pipeline of students engaged in multi-year programs leading to potential employment. As a result of my leadership focus on personnel engagement, the Goddard Space Flight Center has been rated as one of the best NASA workplaces for the last two years, according to the annual Best Places to Work in the Federal Government rankings. In addition, NASA has been ranked the best place to work in the federal government for the last seven years.

If confirmed, workforce management will be a priority for me as the National Reconnaissance Office (NRO) Director. As I learn more about NRO's talent recruitment and workforce development initiatives, I will seek to incorporate best practices from my NASA experience at the NRO.

QUESTION 12: At NASA, you have been a proponent of inserting cutting-edge commercial technology into programs. Although it is improving, the NRO has, at times, been slow to adapt to ongoing changes and potential applications of commercial space and related technologies.

Please describe some successes you have had at NASA in adopting commercial solutions.

I have a strong record of using commercially available components and systems, and if confirmed, I will continue to encourage their use, where appropriate. I believe it's the responsibility of any government agency to buy commercially available products and services when they meet the requirements and are available.

At the National Aeronautics and Space Administration (NASA), we have seen that spacecraft buses for many applications are commercially available and can perform with little to no modification to meet mission requirements. As a result, at Goddard, we implemented the Rapid Spacecraft Development Office to acquire fixed-price commercially available spacecraft buses. This allowed NASA to focus on the unique areas that required significant technology development to meet the mission's requirements. The results have been successful, from the first

mission that supported the Earth Observation System—QuikScat—to the most recent science mission—the Fermi astrophysics observatory—in terms of both mission performance and cost. In addition, this philosophy has helped missions for the National Oceanic and Atmospheric Administration (NOAA) that serve the operational community. For instance, the Suomi National Polar-Orbiting Partnership mission used a commercially available bus to rapidly address and prevent a gap in weather observations. NOAA and the U.S. Geologic Survey now rely on commercially available buses for operational weather and land imaging satellites.

NASA also worked with commercial providers for data on weather and land imaging to provide or enhance data sets. An example is the Sea-Viewing Wide Field-of-View Sensor (SeaWiFS) project that employed a data-buy arrangement where a commercially developed system acquired measurements of the ocean for commercial and scientific customers at a lower cost than if either party developed the system alone.

QUESTION 13: Do you see a path forward at NRO to inject some new technologies and adapt more toward commercial solutions?

Yes. To provide innovative overhead systems, the National Reconnaissance Office (NRO) must constantly work to inject new technologies into programs and leverage the latest technologies into space and ground systems to stay ahead of our adversaries in terms of capability and resiliency.

Based on my experience at the National Aeronautics and Space Administration (NASA), this is best accomplished by developing a technology pipeline, maintaining awareness of other organizations' developments, and adapting the architecture(s) to be flexible to allow for rapid technology insertion. Commercial or other partner capabilities can enhance or replace existing systems. Common data standards and interfaces can increase industry participation to more efficiently meet mission requirements.

NRO Missions and Capabilities

QUESTION 14: The NRO's primary mission is to procure, build, and deliver world-class satellites. If confirmed, how would you prioritize NRO's missions and capabilities?

If confirmed, my priorities for the National Reconnaissance Office (NRO) would be focused on meeting the requirements of Intelligence Community and Department of Defense customers.

Based on my one-on-one meetings with Senators from this committee, as well as drawing on the conversations with both the Director of National Intelligence and Under Secretary of Defense for Intelligence, I would seek to increase the speed at which data is delivered to users, increase the ability to insert new technology, and upgrade systems, while maintaining the high degree of reliability and data integrity expected of NRO systems.

QUESTION 15: If confirmed, what steps will you take to improve the information-sharing, integration, coordination, and collaboration between NRO and the other IC agencies, in particular the National Geospatial-Intelligence Agency (NGA) and DoD?

Throughout my 32-year career at the National Aeronautics and Space Administration, I've partnered with, and worked across, a diverse community of agencies, scientists, engineers, and analysts, with a disparate set of requirements. This experience has instilled in me a strong belief in the value of building and sustaining partnerships with customers and communicating regularly on the status and future direction of programs. I have managed multifaceted partnerships with agencies including the National Oceanic and Atmospheric Administration, the U.S. Geologic Survey, the Department of Defense, the National Reconnaissance Office (NRO), and international organizations to meet shared requirements and priorities. Consequently, I place a priority on listening to partners' needs throughout the conception, development, and operation of a system(s) and communicating progress so that adjustments can be made to ensure operational performance satisfies user needs within technical, cost, and schedule constraints.

If confirmed, I look forward to receiving in-depth briefings on the NRO's current relationships with Intelligence, Defense, and other partners, and look

forward to building strong, cooperative relationships to ensure the NRO continues to provide critical intelligence to support policymakers, analysts and warfighters.

QUESTION 16: If confirmed, how will you ensure that the tasking of NRO resources and personnel to support DoD does not negatively impact its ability to support other mission partners and to fulfill NRO's core missions and capabilities?

The National Reconnaissance Office (NRO) has a responsibility to serve the needs of users across the Intelligence Community (IC) and the Department of Defense (DoD), and since the NRO was established in 1961, it has been supporting various users and mission priorities across both communities. I have demonstrated experience at the National Aeronautics and Space Administration (NASA) supporting diverse customer sets across varied missions that is not unlike the diverse set of customers supported by the NRO. If confirmed, my NASA experience will enable me to work effectively with IC and DoD customers. It will be a priority for me to ensure that NRO continues to fulfill and deliver its core missions and capabilities.

QUESTION 17: If confirmed, how would you partner with private industry to accomplish NRO's missions?

From my experience at the National Aeronautics and Space Administration (NASA), I know a strong partnership with private industry is necessary to accomplish the mission. Mission development is a team effort between government and private industry, and all team members are critical to success.

Private industry typically has the personnel, tools, and facilities to conduct large scale developments and the ability to manufacture multiple copies of systems very effectively. Further, as commercial demand for products increases, the private sector can offer solutions that augment or replace existing systems, thus allowing the government to enhance capability or focus on new capabilities. Also, in many cases, private industry can infuse technology or implement processes at a more rapid rate.

From my NASA perspective, and from what I understand is the National Reconnaissance Office's perspective as well, the government has a broader and longer-term perspective than private industry. The government has the advantage of historical perspective based on long-term knowledge of system capabilities and evolution, of observing the performance and capabilities of multiple suppliers, and

of knowing what capabilities may be needed in the future. Also, the government can often invest in very early stage technologies through universities and government labs that have long-term potential to enhance capabilities for both government needs and commercial applications.

This creates an opportunity for teamwork between government and industry where industry can build the systems, provide commercial alternatives, and infuse technologies, while the government can focus on mission performance, continuity of operations, and maturing very new technologies that may not have a commercially viable payoff at this time, but could significantly improve the mission.

I believe that neither the government nor the commercial sector alone can maintain the level of performance needed to keep the U.S. competitive in space, given the ambitions of our adversaries, so partnership with private industry is not only beneficial, but necessary.

QUESTION 18: In familiarizing yourself with NRO's existing vision and architectures, what are your thoughts about what you have seen in the organization, in light of the massive shifts in the threat and the continued vibrant growth in the commercial sector in the U.S. and globally?

Based on my experience at the National Aeronautics and Space Administration (NASA), I recognize that there is a significant and growing threat to our space and ground systems. From what I have seen so far, the National Reconnaissance Office, like NASA, takes these threats very seriously and is making systems more resilient through design and operation, and by relying on multiple types of systems to assure the continuity of data.

If confirmed, I look forward to receiving more detailed briefings on this matter.

QUESTION 19: Please describe your views on NRO's role with regard to enabling artificial intelligence (AI) and machine learning.

It is very clear that artificial intelligence (AI) is rapidly becoming more capable, and as we move to more diversified and proliferated sources of information, we will need to leverage AI to accomplish the mission. If confirmed,

I would seek to work with industry and academia to maximize their potential to support the incorporation of AI technologies into the National Reconnaissance Office (NRO) mission, in areas such as ground architecture and tipping and cueing across the constellation.

Based on my experience at the National Aeronautics and Space Administration (NASA), AI, if implemented successfully, is a multiplier that enables assessment of large volumes of data not easily done by humans, speeds the delivery of information to the end user, and can help increase system robustness. Leveraging AI is critical to maximizing collection platforms to solve complex intelligence problems. If confirmed, I look forward to partnering across the Intelligence Community and Department of Defense to develop and apply AI technology to the NRO mission.

QUESTION 20: There have been concept of operations (CONOPS) discussions suggesting that NRO may not save all mission data from future collection platforms. Given the downward trend in the costs of commercial storage capacity and the important role of having massive quantities of data supporting AI algorithms, what are your views on deleting data that may not seem to have mission value?

It is critical to save mission data to enable discovery and to train artificial intelligence (AI) algorithms. It is my experience that although storage costs are trending down, the growth of data tends to offset this trend. My experience at the National Aeronautics and Space Administration (NASA) has shown me that it is critical to maintain a combination of data and algorithms that enables a trade between data storage and processing capability to manage costs.

It is my understanding that the National Reconnaissance Office (NRO) is also evolving its ground systems to support a data-centric architecture, which I believe will enable effective data management strategies, such as tiered data storage, minimized duplication of records, and facilitated data sharing across the Intelligence Community and Department of Defense.

If confirmed, I will work with NRO mission partners to develop data retention strategies that provide the best intelligence determination opportunities.

QUESTION 21: In recent years, there have been orders of magnitude growth in tipping and cueing between overhead satellites. Both NGA and NRO separately employ teams of specialized personnel to develop mission-based models to enable collection orchestration. How would you work to ensure an integrated approach to maximize the value of these low density, high demand personnel?

From my understanding, the National Reconnaissance Office (NRO) is focused on developing models, in coordination with the National Security Agency (NSA) and the National Geospatial-Intelligence Agency (NGA), to enable automation across its overhead collection architecture to include geospatial and signals intelligence. Also, Intelligence Community (IC) elements, such as NSA and NGA, need to develop analytic models to analyze data from multiple sources, including data from NRO systems, and identify trends and intelligence gaps. If confirmed, I would work with IC partners, such as NSA and NGA, to ensure NRO-developed mission models are leveraged across the IC to maximize their value.

QUESTION 22: Current NRO Director Betty Sapp has said that although NRO is still innovative and agile, the agency does not have the "same level of risk tolerance or the processes that support a lot of going fast" that it once did. Do you agree, and if so, if confirmed, what would you do to bring the risk-taking and "going fast" culture back to NRO in a way that would also preserve appropriate oversight and accountability?

The National Reconnaissance Office (NRO), under Ms. Sapp and her predecessors, has had a successful and admirable record that, if confirmed, I hope to continue. However, having been involved in government acquisition for a very long time, it is clear to me that we need to explore new ways to streamline our processes to increase the speed of development and improve performance, without compromising the mission or increasing cost risk.

We have a responsibility to infuse the latest technology into our programs to stay ahead of our adversaries and to ensure that we are providing the needed data quickly and efficiently. However, this requires that we all understand and accept the risks. This is not always easy to accomplish and can only be accepted if the systems allow for the flexibility to distribute risk so that no one system or data product is vulnerable to catastrophic loss. New launch capabilities, commercial capabilities, and acquisition approaches all lend themselves to providing the tools to allow a "going fast" culture with reasonable risk.

Over the last 20 years, I have held positions in which I was responsible for program oversight and for reporting progress to Congress and other organizations. I have found that regular reporting ensures oversight is fully and currently informed on the status of programs and acceptable levels of risk to support a "going fast" culture. Only by engaging with oversight can we assure Congress that we are managing risk while meeting mission requirements. Therefore, I believe that communicating with Congress on a regular and continuing basis enables us to increase the pace at which we address the threats we face in space, prevent acts of aggression, and remain consistent with American laws and values while managing risk.

QUESTION 23: One of NRO's top priorities is mission resiliency and survivability – not just the survivability of the spacecraft, but also of communications lines and of processing facilities. If confirmed, would you view mission resiliency and survivability as a top priority?

Yes, if confirmed, I would view mission resiliency and survivability as a top priority.

The National Aeronautics and Space Administration (NASA) operates or develops critical systems for communicating with our astronauts, collecting and distributing data from our satellites, and providing critical data about our weather and resources. Many of these systems are developed or operated by Goddard. As a result, I have worked closely with other agencies to ensure the safety of these systems and to provide resiliency where and when possible. I have directed changes to our space and ground systems—existing and future—to reduce susceptibility to attack and provide protection for our spacecraft.

QUESTION 24: NRO needs not only to acquire space systems but also to ensure that the intelligence collected in space can quickly get to a user – whether an analyst, policymaker, or military user at the tactical edge. The boundary between space and ground blurs more and more, as we seek to perform more processing onboard spacecraft. How do you see the relationship between NRO and NGA adapting to meet these conditions?

From my experience at the National Aeronautics and Space Administration (NASA), working with the National Oceanic and Atmospheric Administration, the National Reconnaissance Office (NRO) needs data to be delivered to the user as

soon as possible. At NASA, we have implemented and experimented with direct downlink and direct broadcast to the user in the field. By "data," I mean direct measurements from the sensor that yields imagery or physical products. As ground processing capabilities have improved, data and information access has also improved, and we expect this trend to continue. Finally, from my NASA experience, it has become clear that data from multiple platforms is necessary to produce the products needed by the user, so that any solution requires a combination of space and ground assets.

As the NRO evolves its capabilities to meet new threats—such as support to Department of Defense (DoD) multi-domain operations to defeat near-peer adversaries in contested environments—I believe the NRO will need to work with its Intelligence Community (IC) and DoD mission partners to augment existing processes with new operational concepts and architectures.

If confirmed, I would work to further enhance the relationship between the NRO and its IC and DoD partners to include the National Geospatial-Intelligence Agency. In a world where the lines between space and ground are blurring, it is even more critical to collaborate among agencies to ensure timely data delivery to users.

QUESTION 25: As it relates to the procurement of commercial imagery data, NRO and NGA Directors agreed in 2017 to transfer the Enhanced View contract to NRO. Going forward, NRO will procure pixels, and NGA is responsible for developing or procuring value-added algorithms and data services. What are your views about this division of labor, and what are your views about the importance of procuring commercial remote sensing data such as Enhanced View?

Based on my experience working with the U.S. Geologic Survey (USGS) on Landsat, I believe that this is a logical and effective division of responsibilities. For Landsat, the National Aeronautics and Space Administration (NASA) develops the sensor and satellite, and provides that data to USGS to develop and procure value-added algorithms and data services.

QUESTION 26: Now that commercial industry processes satellite data in the cloud, NGA is requesting that NRO deliver unprocessed pixels directly to the Commercial Cloud Services (C2S) cloud for processing and dissemination. If confirmed, would you embrace commercial best practices, such as this?

Yes. I agree that C2S represents an opportunity that should be pursued, and I think that government organizations like the National Aeronautics and Space Administration (NASA) and the National Reconnaissance Office (NRO) should employ commercial best practices when they do not compromise the mission.

QUESTION 27: NRO is focusing on traditional spacecraft as well as new "small" space entrants. Less expensive commercial launch options have democratized access to space.

a. If confirmed, how would you plan to leverage commercial launch and use less expensive launch options to allow for more risk and more rapid replenishment of satellites?

I believe it's the responsibility of any government agency to buy commercially available products and services when they meet the requirements and are available.

There is a growing number of commercially available launch providers, both small and large, and if confirmed, I have every intention of leveraging the commercially available options to launch National Reconnaissance Office (NRO) payloads when that is the right solution for the mission.

Fortunately, I have been involved with the NRO and Department of Defense in the utilization of both new and smaller entrants into the launch vehicle market, as both a joint user of the service and as a provider of range support at the National Aeronautics and Space Administration Goddard Wallops Flight facility.

b. What are your views about the need for "on demand" launch and "on the shelf" satellites to potentially re-establish capacity in a wartime scenario?

I am supportive of both capabilities and, if confirmed, look forward to being briefed on the National Reconnaissance Office's plans for

implementing these capabilities. In my role at the National Aeronautics and Space Administration, I have experienced the benefits of off-the-shelf components and how they can accelerate mission delivery.

c. If confirmed, how would you plan to balance spending and missions for both of these dimensions of the space architecture?

If confirmed, I look forward to being briefed on current plans for implementing "on demand" launch and "on-the-shelf" capabilities for the variety of missions the National Reconnaissance Office conducts.

d. Do you believe that smaller satellites can begin to take on portions of missions that today's larger, more expensive satellites provide?

Yes, smaller satellites have a role in the future and can enhance the architecture or offload the mission requirements for larger satellites, taking into account the relevant physics of the user requirement. A mix of large and small satellites will provide complementary capabilities that address the full range of user requirements, while also enhancing resiliency.

e. What roles do you see small satellites playing in architecture?

I see great potential for small satellites in the future architecture of the National Reconnaissance Office (NRO). The National Aeronautics and Space Administration and Goddard Space Flight Center have used small satellites for missions ranging from education and technology demonstrations to science mission enabling. Satellite size is determined by a variety of factors that must be balanced, so I anticipate a diverse architecture employing all scales of spacecraft, with a growing reliance on small satellites as sensors are miniaturized, launch costs decrease, launch opportunities increase, and constellations become feasible. If confirmed, I look forward to understanding which NRO requirements can be satisfied with smaller satellite constellations.

QUESTION 28: Currently, large aerospace prime contractors dominate the contract landscape. This reliance on classic primes limits the flow of new ideas into the NRO acquisition cycle. If confirmed, what are your plans to allow "new" space entrants easier access to NRO contract vehicles?

As the variety of launch capabilities has increased, it has become easier to develop a full range of payloads, from small to large, which expands the design options for space systems. This includes a full range of system sizes, from small satellites, to large systems, to constellations of satellites, based on mission requirements. As the design options increase, so do opportunities for new entrants with new ideas, capabilities, and systems. At the National Aeronautics and Space Administration, we have explored multiple ways to do this by using "off-the-shelf," commercially available spacecraft and by purchasing commercial services. If confirmed, I will seek to best adapt these concepts to the National Reconnaissance Office mission.

QUESTION 29: What are your views concerning NRO's capabilities, and what is your assessment of the steps that have been taken to date to improve those capabilities?

I have been involved in the review of some of the National Reconnaissance Office's (NRO's) systems and in community sponsored events involving the industrial base and research opportunities. As a result, I am impressed with what I have seen and believe that NRO is working to improve its capabilities.

QUESTION 30: If confirmed, what additional steps would you pursue to improve intelligence collection and what benchmarks would you use to judge the success of future collection efforts by NRO?

As part of the confirmation process, I have had office calls with several members of this committee. Several themes emerged from these office calls, including the need to increase the speed of data delivery to the user community; the need to increase the pace of technology infusion; and the need to increase the use of commercially available systems to enhance or replace existing systems, all while ensuring the continuity of critical data available from National Reconnaissance Office (NRO) systems. Further, it has been emphasized, and it is critical, that we maintain a highly capable workforce that can achieve the NRO mission and that recruitment will be critical to bring in new thoughts and future leaders.

QUESTION 31: The Office of Director of National Intelligence IC IT Enterprise (IC ITE) C2S cloud provides the IC with an opportunity to enhance mission capabilities as well as offloading commodity capabilities, such as elastic compute/processing. What are your views on the role of the cloud as it relates to NRO capabilities?

I believe that cloud services offer an opportunity to reduce the cost of processing, enhance data distribution, and provide a more secure environment if implemented properly. C2S allows users to obtain computing resources more efficiently and only pay for the resources that are used. These resources can increase and decrease as demand changes, especially important in any dynamic environment.

QUESTION 32: The commercial cloud soon will deliver new capabilities such as "ground station as a service" that receives directly downlinked data globally and will make processed data accessible within seconds. If confirmed, would you be willing to embrace disruptive technologies such as this?

If confirmed, I will not shy away from investigating disruptive technologies if they enable the National Reconnaissance Office to better accomplish its mission.

Space Force

On February 19, 2019, President Trump signed Space Policy Directive-4 (SPD-4), directing the Secretary of Defense to craft a legislative proposal to establish a Space Force as a sixth military department of the Armed Forces within the U.S. Air Force. The proposal also excludes NRO or other non-military space organizations.

QUESTION 33: What are you views of the Space Force?

I support Space Policy Directive-4. Space provides a global strategic advantage to the United States, and increasingly our adversaries are seeking to deny that advantage. The Executive Branch proposal to establish a U.S. Space Force will ensure the United States has an organization dedicated to the unique warfighting requirements for enhanced defense against an increasingly contested space domain.

QUESTION 34: If confirmed, would you support moving NRO from its current position within the IC to the Space Force?

No. The Administration's proposal does not include the National Reconnaissance Office (NRO) in the Space Force. One of the guiding principles in the standup of the Space Force is to minimize risk to mission. The NRO is on the cusp of delivering key capabilities that will bring more data to support both the Intelligence Community (IC) and our warfighters. As directed in SPD-4, the IC and Department of Defense will be developing mechanisms to deepen space collaboration and integration efforts to increase effectiveness in space operations.

QUESTION 35: If confirmed, would you support combining NRO and the Department of Defense's new Space Development Agency (SDA)? If not, how would you as NRO director plan to collaborate and coordinate with the SDA?

No. At this time, the newly established Space Development Agency (SDA) is in the process of standing up. From my understanding of recent guidance from the Acting Secretary of Defense, there will be opportunities for cooperation that benefit both the National Reconnaissance Office and SDA. If confirmed, I look forward to working with the SDA and other agencies to identify areas of cooperation in the space systems development domain.

QUESTION 36: If confirmed, what do you see as some of the significant challenges to harmonizing and aligning how the NRO and the Space Force could work together and take advantage of their respective capabilities?

A U.S. Space Force will help ensure that the United States has an organization dedicated to the unique warfighting requirements to defend against an increasingly contested space domain. If confirmed, under my leadership, I expect the National Reconnaissance Office (NRO) to work with the Space Force just as it has worked with the U.S. Air Force in fulfilling the Air Force's responsibility to organize, train, and equip military forces for the joint force and to assess opportunities for advancing our shared mission interests. The NRO will be a participant in the Space Policy Directive-4 directed study to identify mechanisms to increase unity of effort between the Intelligence Community and Department of Defense.

QUESTION 37: If confirmed, how would you support the 180-day study required by SPD-4 that will detail progress and plans to create and enhance mechanisms for collaboration across the DoD and IC?

If confirmed, I will seek to provide input into the 180-day study to ensure the National Reconnaissance Office (NRO) mission continues to support Intelligence Community and Department of Defense (DoD) requirements. I believe it is important to build upon the strong foundation of cooperation between the NRO and DoD space elements in areas such as acquisition, planning, and operations that exists today.

Congressional Intelligence Committees

QUESTION 38: What is your understanding of the Director of NRO's obligations to keep congressional intelligence committees fully and currently informed?

If confirmed as the Director of the National Reconnaissance Office, I assure you that I will continue to abide by the responsibility to provide timely and accurate information to Congress.

QUESTION 39: Please assess, based on your observations and understanding of the relationship between NRO and Congress, how well NRO is working with Congress and, specifically, with the congressional intelligence committees.

a. What information should NRO share with Congress?

Over the last 20 years, I have held positions in which I was responsible for program oversight, and I routinely briefed and testified before Congress. I believe that communicating with Congress on a regular and continuing basis enables us to further our collective ability to meet national intelligence needs, ensure resiliency and robustness, and remain consistent with American laws and values. If confirmed, transparency with congressional oversight must and will be a priority for me as I fulfill my duties as Director of the National Reconnaissance Office.

b. What, if any, information should NRO withhold from the congressional intelligence committees? Why?

Given my understanding of the National Reconnaissance Office and its mission, I am not aware of any information that should be withheld from the congressional intelligence committees. If confirmed, I will keep the committees fully and currently informed.

QUESTION 40: Please describe your view of NRO's obligation to respond to requests for information from Members of Congress.

Oversight is critical to the successful operation of any government organization, to include the National Reconnaissance Office (NRO), and I believe oversight committees are our partners in accomplishing the mission. If confirmed as Director of the NRO, I would have the responsibility to keep committees fully and currently informed, and I would direct all NRO entities to promptly support requests for information.

QUESTION 41: Does NRO have a responsibility to correct the record, if it identifies occasions where inaccurate information has been provided to the congressional intelligence committees?

Yes.

National Security Threats and Challenges

QUESTION 42: What, in your view, are the current principal threats to national security that are most relevant to NRO?

I have experience in this area, based upon the National Aeronautics and Space Administration (NASA) Space Asset Protection Program that routinely informs us of threats and mitigations. No space asset in Earth orbit is immune from at least the attempt to deny control. Space threats are increasing, and we must be vigilant to protect against them to the best of our ability.

If confirmed, I plan to pursue strong partnerships across the Intelligence Community and Department of Defense to assess space threats. I look forward to

receiving more information on this topic to better understand the depth and breadth of adversary space systems that are intended to counter the National Reconnaissance Office's current and future capabilities.

QUESTION 43: In your opinion, how has NRO performed in adjusting its policies, resource allocations, planning, training, and programs to address these threats?

My experience with National Reconnaissance Office (NRO) personnel and programs has been very positive in the areas of policy, resource allocation, and planning regarding threats. If confirmed, I intend to gain more insight on how NRO plans to align its resources to address potential threats.

NRO Management and Personnel

QUESTION 44: NRO's workforce includes NRO cadre as well as other IC personnel and personnel from the military and private industry. NRO's missions require highly-skilled engineers, scientists, communications specialists, and acquisition managers.

a. What are your views of the current NRO culture and workforce?

Based on my experience working with elements of the National Reconnaissance Office, I am confident that there is a highly motivated, competent, innovative workforce with whom I will be glad to serve, if confirmed.

b. What are your goals for NRO's culture and workforce, if confirmed?

From my experience at the National Aeronautics and Space Administration, creating and maintaining an open and diverse work environment is essential. This means people are valued, have exciting work, are supported, have promising career paths, and know they can bring up issues or concerns whenever they arise. Further, since the National Reconnaissance Office cadre is still relatively new, if confirmed, I will focus on enhancing recruiting activities and developing an intern program to allow motivated college students to participate in an exciting mission.

c. If confirmed, what are the steps you plan to take to achieve these goals?

If confirmed, I fully expect that outreach and recruitment will be a significant focus of my work at the National Reconnaissance Office (NRO), and I am willing to make myself available for public events that would serve NRO's recruitment efforts. I understand the continuous challenge of attracting and retaining highly qualified employees to solve our national security challenges.

QUESTION 45: If confirmed, you would be the first political appointee to run NRO. Yet the Director of NRO must achieve independence and distance from political considerations to serve the nation with objective and dispassionate intelligence collection.

a. In what ways can the Director of NRO achieve sufficient independence?

The National Reconnaissance Office (NRO) mission is highly technical; accordingly, programmatic decisions must be based on technical merit, and acquisitions must proceed consistent with U.S. law and regulations.

If confirmed, I will ensure that the NRO satisfies its mission based on technical and legal requirements.

b. If confirmed, how will you maintain this independence?

Throughout my career, including as a Naval Officer and at the National Aeronautics and Space Administration (NASA), I have found it imperative to do what is right to protect people and hardware and to maximize the possibility of success. As such, I have, at times, disagreed with senior leaders. One example is when I dissented on the decision to launch the Shuttle mission, STS-121, to the International Space Station when I was the NASA Chief Engineer. The NASA engineering and safety community, in the wake of the Columbia accident and unexpected foam release on STS 114, recommended that potential foam problems on STS 121 and future missions could be further mitigated with minor improvements. However, the Chief of Safety and I disagreed with the

rationale and risk assessment developed by the program to launch without the fixes. To be clear, the risk we were concerned about was not launch, or risk to the crew, but the potential for loss of the vehicle. We were the only two people on a 25-member panel who recommended delaying the launch. From this experience and others like it, I have demonstrated an ability to maintain independence, and if confirmed, I will defend National Reconnaissance Office equities.

c. What is your view of the Director's responsibility to inform senior Administration policy officials or their spokespersons when the available intelligence either does not support or contradicts public statements they may have made?

The Director must inform the leadership of the correct information promptly.

QUESTION 46: How would you resolve a situation in which the assessments of NRO personnel are at odds with the policy aspirations of the administration?

If confirmed as the Director of the National Reconnaissance Office (NRO), it will be my responsibility to accurately convey the assessment of the NRO and to resolve to the best of my ability any differences of position.

QUESTION 47: What is your view of the principles that should guide NRO in its use of contractors, rather than full-time government employees, to fulfill intelligence-related functions?

a. Are there functions within NRO that are particularly suited for the use of contractors?

It is my understanding that the National Reconnaissance Office (NRO) has a history of partnering with industry to meet its mission requirements. Like the National Aeronautics and Space Administration (NASA), it is my understanding that the NRO leverages industry to manufacture and develop space assets, provide IT capabilities, develop ground systems, and operate and maintain systems.

Further, it is my understanding that the NRO relies on the use of specialized capabilities of contractors through System Engineering and Technical (SETA) services.

b. Are there some functions that should never be conducted by contractors, or for which use of contractors should be discouraged or require specific Director approval?

Based on my experience at the National Aeronautics and Space Administration, there are inherently governmental functions that should never be performed by contractors. As an example, contractors should not perform program manager or contracting officer functions.

c. What consideration should NRO give to the cost of contractors versus government employees?

Based on my experience at the National Aeronautics and Space Administration, the cost of contractor services must be closely monitored and justified. If confirmed, I look forward to receiving briefings on the National Reconnaissance Office's hiring practices, functions performed by contractors, and the ratio of government employees to contractors.

d. What does NRO need in order to achieve an appropriate balance between government civilians, military personnel, and contractors?

I am aware that in 2015 this Committee supported the National Reconnaissance Office's (NRO's) request to establish a cadre workforce. If confirmed, I look forward to receiving briefings on NRO's hiring practices and the workforce breakdown across cadre, military, and contractor positions.

QUESTION 48: If confirmed, what will you do to ensure that there are equal professional opportunities for all members of NRO workforce?

Diversity is a force multiplier that greatly enhances an organization's ability to accomplish its mission. I certainly found this to be true at the National Aeronautics and Space Administration (NASA). Creating an open environment of

trust is key to working with all levels of the workforce to understand opportunities and challenges that exists within employee career paths. One example that both encouraged diversity and helped foster careers in science, technology, engineering, and math (STEM) was my participation in, and support of, the creation of an annual national STEM workshop, "Sustaining Women in STEM." This event brought together leaders from Federal agencies, private industry, and academia to develop solutions to create work environments that sustain women in STEM careers. As a direct result of my leadership focus on inclusion and diversity, Goddard has been rated as one of the best NASA center at which to work for the last two years.

If confirmed, I want the National Reconnaissance Office (NRO) to be an employer of choice, drawing science, technology, engineering, arts, and math talent from across academia, industry, military, and government; and to be inclusive of all ages, ranks, races, religions, sexual orientations, and identities. If confirmed, I look forward to working with the NRO's Office of Human Resources to become fully informed of the processes in place to ensure fair hiring practices, diversity recruitment, and career development opportunities.

Disclosures of Classified Information

QUESTION 49: If confirmed, how will you ensure that the precautions that NRO takes to protect classified information are maintained and improved, if necessary?

Safeguarding our classified information and capabilities is a fundamental requirement for success. If confirmed, I look forward to receiving briefings on the current protective measures in place at the National Reconnaissance Office and exploring new capabilities to further enhance security.

QUESTION 50: If confirmed, how would you manage, and what priority would you give to addressing, the following issues:

a. The vulnerability of NRO systems to harm or espionage by trusted insiders;

If confirmed, I look forward to working within the National Reconnaissance Office to make sure that we are hiring the best people and putting systems in place to secure our network and our environment.

b. The vulnerability of NRO systems to outside penetration.

The second part of the equation is hardening our systems against intrusion, and if confirmed, I look forward to working with the National Reconnaissance Office to learn more about the protective measures in place now. I can also pledge to dedicate sufficient time and resources to maintain and improve the protections currently in place.

QUESTION 51: How do you think that individuals who mishandle, intentionally or unintentionally, classified information should be dealt with? Would you draw distinctions based on intent?

I take these issues very seriously. If confirmed, to the extent that there is an intentional or malicious effort to mishandle classified information, I would anticipate referral to the Department of Justice for review and potential criminal prosecution; in the case of unintentional mishandling of classified information, the matter would be referred to National Reconnaissance Office security for review and appropriate administrative action.

SELECT COMMITTEE ON INTELLIGENCE

UNITED STATES SENATE

Post-Hearing Questions for
Dr. Christopher Scolese upon his nomination to be
Director of the National Reconnaissance Office

1. As it relates to small satellites, what policies did you modify at NASA to accommodate rapid acquisition of small satellites?

One of my first priorities as Director of the Goddard Space Flight Center was to invigorate the smallsat development capabilities of the Center. This included assessing our current capabilities; establishing new development processes to accommodate low cost, rapid development smallsats; and establishing an internal research and development portfolio focused on miniaturizing instrumentation for use on these platforms. I established a smallsat office at the Wallops Flight Facility to coordinate all Goddard smallsat development and procurement efforts to leverage proven processes and capabilities for rapid development and deployment of suborbital missions. Further, we pursued partnerships with universities and industry to leverage resources, capabilities, and technologies to develop and launch compelling tech demos and science missions. As a result, we have been successful in delivering new sensors to orbit to observe space environment conditions, and we have ongoing development efforts to enable new space weather capabilities, including constellations. For these new missions, Goddard implemented a streamlined partnering approach for competitive opportunities to select a spacecraft vendor or instrument partner that resulted in a rapid acquisition upon mission selection.

2. NASA Goddard has struggled to keep the James Webb Space Telescope on schedule and on budget. What lessons have you learned from your experience managing the Goddard's acquisition of the James Webb Space Telescope that you could apply to the NRO?

A significant lesson I have taken away from my experience with the James Webb Space Telescope is the importance of understanding the maturity of new technologies prior to approving a program of record. This can be best achieved when the leadership and the team starts with clear requirements documents that enable the team to map the mission requirements to the required technologies and technical solutions. This allows the developing organization to drive research and development investment and ensure proper accounting of development risks. Once all risks are well understood, it is important to establish a program budget and secure a funding profile commensurate with these risks.

If confirmed, I will bring these lessons learned to the National Reconnaissance Office and will provide updates to the oversight committees as needed to ensure an informed dialogue.

3. The NRO's relationship with NGA is an especially important one. If confirmed, how do you understand the line of demarcation as it relates to development of value added data services, and what steps will you take to improve communication, coordination, and collaboration between the NRO and the NGA?

I agree with you that the National Reconnaissance Office's (NRO) relationship with the National Geospatial-Intelligence Agency (NGA) is critically important; in fact, I see it as a partnership vital to our national security. Through my career, I've partnered with, and worked across, diverse user communities with disparate requirements. As a result of these experiences, I place a high priority on understanding partners' needs throughout the conception, development, and operation of a system. I also recognize the importance of consistently and candidly communicating progress to partner organizations so that adjustments can be made to ensure that operational performance satisfies user requirements within technical, cost, and schedule constraints.

It is my understanding that the National Reconnaissance Office is responsible for acquiring commercial imagery to meet Intelligence Community (IC) and Department of Defense (DoD) intelligence requirements, which are defined by the geospatial intelligence functional manager. If confirmed, I would expect to work closely with IC and DoD partners to determine who is best positioned to acquire any value added data services based on the requirement.

If confirmed, I look forward to working with the NGA Director to ensure that the capabilities developed or procured by the NRO are responsive to the needs of the NGA, IC, and the DoD user communities.

4. Anti-satellite Capabilities

Recently, India conducted an anti-satellite missile test, and claimed it demonstrated the capability to shoot down and destroy a target in space. India's anti-satellite test highlights the dangers in a race for space access and superiority. I am concerned that as the number of nations with such offensive space capabilities grows and the capability becomes more standard, the threats to U.S. civil and military space capabilities will increase. Contested and congested space, proliferating debris, and vulnerabilities in our space assets all pose critical challenges to our national security.

a. What concerns you most about our adversaries' space developments?

Space is becoming a more competitive, contested, and congested environment. The threat environment is evolving and other countries are developing capabilities that approach those of the U.S. We are also under an increasing threat from both physical attack and cyber attacks. Our space and ground systems must be secured and protected in order to maintain control of our satellites. It is critical to sustain investments in technology such that we can maintain our strategic advantage in space and leverage capabilities provided by the commercial sector and international partners.

If confirmed, I look forward to receiving more information on this topic to better understand the depth and breadth of adversary space systems that are intended to counter the National Reconnaissance Office's current and future capabilities.

b. What is needed today to ensure our space assets are protected five years from now?

Overall, I believe the United States is still the leader in space exploration and in overhead reconnaissance. To maintain that strategic advantage for the nation, we need to invest in technologies that will continue to enable the most effective systems in the world, and we must leverage our partners' capabilities and the capabilities of the commercial sector to enhance our survivability. We must design future space and ground systems with survivability and resiliency as a requirement. To develop a survivable system, it is necessary to consider the entire architecture that spans the range of government satellites of all sizes, commercial capabilities, partner capabilities, and ground systems.

I also believe that communicating with Congress on a regular and continuing basis enables us to increase the pace at which we address the threats we face in space.

c. In your view, how can the United States lead in setting the rules of the road for space?

It's critical that the United States maintains leadership in establishing rules of the road for space. If confirmed, I look forward to working with other government agencies to ensure the United States remains a leader in the space community and in establishing rules of the road for space.

5. DoD-IC Integration

In order to effectively address threats in space, and ensure U.S. superiority in space, we need the Department of Defense and the Intelligence Community to be working seamlessly together. The best example of integration between the Department of Defense and the Intelligence Community is at the National Space Defense Center. This integration is critical to defending our assets in space.

a. In the face of current threats, how do you assess the strength of that integration now?

It is my understanding that the relationship the National Reconnaissance Office (NRO) has with its users in the Intelligence Community (IC) and the Department of Defense (DoD) is working well. It is important that the NRO maintains a close relationship with IC and DoD partners to ensure that it can deal with the current and evolving threat environments.

If confirmed, the need to maintain strong partnerships will be a priority.

b. Will that integration mission need to be enhanced moving forward?

It is my understanding that the National Reconnaissance Office (NRO), the Intelligence Community, and the Department of Defense work well together today. In the future, I recognize that users' needs will evolve and that the NRO must be responsive to these changes. Additionally, new technologies and commercial capabilities will become available to meet current and evolving needs. As a result, it is important that we consistently enhance integration to ensure that we all understand the threats, what performance is required to address those threats, and how the technologies and partner capabilities can be applied to address the threats in a timely and effective manner.

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