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National Reconnaissance Office**

**"National Reconnaissance Office Update"**

**13 September 2010**

**General Carlson:** I'm no longer in the Air Force, and the CIA no longer has the same type of authority that it had back in 1962. So for several years, in fact for a couple of decades, the National Reconnaissance Office has been operating without a charter. But for some reason it has become the topic of interest here in Washington, D.C., and you've got to have a charter, you've got to have a charter, you've got to have a charter. Well that worked its way through the bureaucratic process, and it's now ready for signature by the DNI and the SecDef and I anticipate that it will be coming out here in the next few weeks.

It was a long process. It took a good bit of time, and I think that's good. I would rather have a charter that has been well thought through and criticized and chopped apart and put back together again than one that was just written on the back of a napkin and handed out. So we'll have that in the next few weeks, and I anticipate that it will do a couple of things which I think are of paramount importance.

The first of those is that I believe that it will give back to the Director of the National Reconnaissance Office the milestone decision authority for his programs. I think that's appropriate because when we hit the button I have to be the guy that says it's okay to hit the button. And if I'm going to do that, then I would like milestone decision authority over the programs that I have to punch the launch button on.

The next thing it will do is it will give us the authority to, or the opportunity to, call a meeting of the Director of National Intelligence and the Secretary of Defense. I have those two gentlemen as bosses, and it's important to do that because sometimes we get requirements from the Department of Defense and requirements from the intelligence community and when I put those together it's water and vinegar or water and oil; it doesn't work. And I'm not going to start a system like we have in the past that I can't match requirements to resources.

There are only three legs to the stool; cost, schedule, and performance. And in this day and age, many times cost is fixed and so is the schedule. So if I only have to vary performance, I'm not going to allow the National Reconnaissance Office to get issued a performance spec that

I know we can't meet. So I think it's important that we have that opportunity to call that meeting to get a meeting of the minds on what it is we're going to do and then go out and execute it.

The third thing. I will just say it briefly here a minute, a word about aggressive launch campaign, and then I'll talk about it on my last slide. But we have a remarkably aggressive launch campaign. When I first got there, I thought well so what's the big deal; you've only got five or six launches in seven or eight months. I mean that can't be that big of a deal. Well it is. It's incredibly complex when we deal with some of the limiting factors that we have right now put upon us. So I'll talk more about that later.

Next chart.

I thought I would talk about this because I get questions on what are your biggest challenges? What did you look at? What were you surprised with when you first got to the NRO? And so as I got there, I said as a guy walking in off the street who knew a very little bit about space -- very, very little bit about space -- I said to myself if this organization is going to be credible we've got to launch rockets on time and get payloads into orbit when we say they're going to be there, and they've got to do what we tell people that they were going to do. And I'll tell you a little bit later why that's a challenge.

I can't do much about the sins of the past. I have one program that's, in round numbers, say 700 percent over in schedule and 300 percent over in budget. We're not going to do that anymore. That is absolute nonsense. That's what led to guys like me as a three-star on the Joint Staff to say take it from those guys; they never execute on time or on schedule anyway.

Well we're going to get that credibility back, and I would just tell you that, right now nine and a half out of ten of our programs are operating on schedule and on cost, and that's the way we're going to keep it. I'm not going to come to the Air Force or come to the Department and ask for more money.

Now at the same time I tell you that -- I'll go to the second bullet -- and that is to improve the business of launch. The launch business in this country is a little bit in disarray despite the heroic efforts of the people that are building our rockets, ULA. We made some decisions as a department and as a nation a decade and a half ago that put us on the path we are today where we are essentially out of the commercial business and the department and NASA are funding all of the infrastructure that's associated with

launch, and that makes it very expensive. When you only launch half a dozen rockets a year and you've got to pay for all the infrastructure, it's going to be expensive.

The second element that causes an increase in launch costs is that when we dictated -- and I say we in the collective group here -- dictated that Lockheed Martin and Boeing were going to go together and form United Launch Alliance, when we dictated that solution we negotiated a few lots of rockets at a very, very good price. In fact, at a rock-bottom price, at a price that I don't think the stockholders can endure for much longer. In fact, those lots of rockets are going away and we're going to have to negotiate a new contract.

If I was in business, I would do the same thing. I would up the price, so you can pay a dividend to your shareholders. So the price of launch is going to go up for everybody -- everybody that's in the rocket business in this country -- whether you're NASA or the Air Force or the National Reconnaissance Office. Bob Kehler and I have worked very, very hard with the Secretary and the Chief to, despite that fact, bring some level of predictability into the launch business.

Let me explain what I mean by that. Today NASA negotiates for their rockets, and the Air Force negotiates for theirs, and the National Reconnaissance Office negotiates for our own. I have told the Chief and the Secretary I'll give up my negotiation rights; you negotiate for them so we can get a larger buy. I don't care if I do it or you do it, it just doesn't matter to me but let's pool our resources so that instead of negotiating for two or three and you for five or six we'll negotiate for eight or nine and maybe we can get a better deal.

We're trying to work that with NASA right now, and we'll see how that all works out. If it does, I think we will be able to bring some level of stability to the rocket -- at least the liquid-fueled rocket -- industrial base in this country, and I think that will mean a great deal for the people that are building those rockets. They'll be able to say okay, we are going to make some capital investment or capital improvements because I know for the next five or six or seven years, whatever it happens to be, I'm going to be able to produce this many rockets for the Air Force, the National Reconnaissance Office, and NASA. So we're working very hard on that, and I have a lot of hope and a lot of expectation that that will actually happen.

The third thing that worries me is that the amount of research and science and technology that we're doing in the National Reconnaissance Office, quite frankly, across the technical basis of the Department of Defense. I got there

13 or 14 months ago now and found that the amount of investment in science and technology had dropped down almost three percent below what it had historically been. So I took that as one data point and then went around and asked for some more.

The other data point I got is that of the rockets that we're going to launch in the next six or seven months, 60 percent of the technology that's on those rockets came out of that science and technology bunch. So I said to myself if we're going to almost cut the science and technology investment in half today, what's going to feed, be the seed corn, for the satellites we're going to launch ten years from now? And the answer came back well we really don't know.

So we have, in the FY12 submission, we have worked very, very hard. In fact, we have been successful. We'll see how it works its way through the whole process. You know how the budget process works in this town, but when I submit my budget it is going to get us inside the FYDP back to the historical levels that the NRO has always funded science and technology at.

So my plan is that ten years from now, when somebody is standing up here, they'll be able to say 60 percent of the technology that we put into this satellite came out of our S&T program. Unlike the Air Force's and the other service's science and technology, mine is a little bit more predictable because even though what the particular advances are I don't know, I know that I'm pretty much going to be doing signals intelligence and I'm going to be doing imaging intelligence, and I'm going to be doing communications. The Air Force and the other services have a much broader set of missions to deal with than I do. So I can direct that technology money, and we have been very successful at doing that in the past.

The final thing is the NRO workforce. As all of you know, I don't own a workforce; I borrow my workforce. And even though the Chief and other agencies and the Navy and others have been very, very helpful in giving me some of their very, very best, it's difficult in this day and age with fighting a war that's been going on a long, long time and trying to maintain joint qualifications on people and trying to get them through the gates that they have to get through to get promoted, it has been very, very difficult, both in the civilian as well as the military regime to retain quality people.

We have begun a series of small initiatives, because you have to start someplace to begin to build up a workforce, that I can rely on over time. We've done two

things, and that's all I've been able to start so far. There'll be others coming in the future.

The first one is that I have been able to negotiate with the DNI and the Department of Defense, even though I've had to give up something for it, and that's fine. I'll give it up. It's the addition of a hundred people to the National Reconnaissance Office. I'll get 30 in '10, 30 in '11, and 40 in '12. I think the math adds up to a hundred there. I'll be able to hire those people, some in the entry level, some in the midgrade, and then some, a very few, in the 14 and 15 area in civilians. They will be coded; 70 percent of them Air Force and 30 percent of them Navy, and we will -- even though they'll be coded in the Air Force and the Navy -- we will keep them as permanent civilians in the National Reconnaissance Office.

What that does for me is it gives me a chit when I go to the service or one of the other agencies to negotiate for somebody, when I need to retain somebody for another two years because he or she is working on a big program, it gives me the option to say look I know that I'm going to ask you to keep this person on for two or three more years or whatever it is, but I'm willing to give you so and so. Right now I don't have anything that says I'm willing to give you something; I just have to go say I'd really like to keep this person for two or three more years. Please. Don't you see how important this is? It must really be important. And it's just not nearly as effective as going I'd like to make a trade with you. So that's what we're in the process of instituting.

The other thing we've done is we've been able to get a program similar to what in the Air Force is called PALACE Acquire. We had a lot of success with that when I was in the Air Force, and so we've adopted that model out at the NRO.

This first year, we will hire four college graduates into the National Reconnaissance Office workforce. All I could afford was four, and I'm directing them to be system engineers. We have cooperative programs with several of the top universities in the country to do that and we've got a large number of applicants for that four. We will then bring them on the workforce as a midgrade GS employee for about a year to a year and a half. Then we'll send them back to school, pay for their school, books, tuition, and what-not, pay them their salary, and then bring them back into the NRO workforce and continue to promote them. While they're at college, we will direct their thesis. They will have a mentor assigned and so on.

In the Air Force we've had very good luck with that, because by the time they get to about the nine-year point,

ten-year point, if you've convinced them that you're a pretty good organization and they've had a good mentor, we had great luck in keeping those kind of people. So we're going to do that. We get four this year, four next year, and then we'll build up to six, six, and eight in the out years.

That's about all I can do personally, other than I continue to work in a very cooperative manner with the people that provide me my workforce, and they've been, as I've said, very good in helping us. We've got some of the best program managers in the country and I've been very fortunate in getting great people out of all the people that help me.

Next one.

I put this chart up because if you look at the TCPED process, only the collection comes from space. The rest of it is done on the ground, and even though we do some marvelous things with satellites, we don't put them up every month or every year or even every five or six years. In many cases, it's every decade or eight years, and when you get them up on orbit and turn them on, the ones and zeroes that come down from those spaceships don't change, regardless if you leave it up there three years, five years, eight years, or twenty; the ones and zeroes remain the same. So if you want to change the way you're doing business, you have to change the way you're doing business on the ground.

When I got to the NRO, I wasn't impressed with the way we were doing that. My impression of it was that we were doing signals intelligence over here for a customer, and that's just great, and we were doing imaging intelligence over here for a customer, and that's great, and then we're doing MAZINT for a customer, and that's just great.

But what do people want today? People want a map or a picture with a dot on it. It really doesn't matter, in my discussions with people, it doesn't matter whether they want to go kill something there or they want to pick up somebody there or they want to drop something there or they want to rescue somebody there or whatever it is. They want a picture with a dot on it.

Well you don't get that by sending all your signals and stuff over to these guys and all your pictures over to these guys. You get it by integrating the ones and zeroes. And so we are migrating to that point where we can integrate the ones and zeroes much better.

Our ground stations have been very, very active in working that, but we have to get the systems that they use to the point where we can do that. Because we bought

systems that do very, very well at signals and pushing them off and systems that do very well at MAZINT and pushing it off and so on. But we didn't buy systems that put things together, and with today's computing power, we can do that. We can do that much better than we've been doing in the past, so that's what we're doing.

Next one.

I think I've said most of this, but what people want out of us is a dot on a map or a dot on a picture, and they want it faster and they want it more accurate. Now I will tell you that just in the last 24 months, we've improved the accuracy of geo-location by nearly an order of magnitude, and we're going to continue to do that and bring it down.

We're getting to the point where here very, very shortly, within the very near term, we will be able to target using signals intelligence. And that's an incredible change in the way we do business. Now whether the ROE will allow us to do that or not, I don't know. We'll just have to wait and see. But we are getting to that point where we can do that. And the power of being able to do that is being recognized by people in the AOR. And we are being asked to integrate overhead collections with airborne collections, overhead collections with ground collections, and so on. And when we do that we find that there's a great synergism there. Faster, better, and more accurate.

Next one.

I think this is the launch chart. A week from Monday, a week from today, we launch a rocket out of Vandenberg and then about a month later another one, this one a Delta IV Heavy, which is a huge rocket with the largest satellite in the world on it, down at the Cape. Then we'll go back out to Vandenberg for what we call an NRO launch. Is it 49? I can't read it from over here. And then so on. You'll see that campaign.

The reason that I put that up there was that this is the most aggressive launch campaign that the National Reconnaissance Office has had in 20 years, almost a quarter of a century. That would be okay except that we haven't launched very many rockets lately, and we don't have but about half the people we had when we did this the last time, and we don't have but about 25 percent of the infrastructure we had when we did it the last time and so this is a real challenge.

I've got a force that we're training today through a series of drills that up to half of them have never launched a rocket before; that was unheard of 10 or 15 years ago. So

the kids that are sitting on that console next Monday night out at Vandenberg, half of them have never seen this before. And that's not the way you go to combat. So this is difficult and complex work, and we're working it very hard.

The other thing I can tell you is these are very important, because they all go to update a constellation which is aging rapidly. We bought most of our satellites for three, five, or eight years, and we're keeping them on orbit for ten, twelve, and up to twenty years.

Now when I buy something people complain about how expensive it is, but nobody ever complains when it's time to die and it keeps right on ticking. Some of these guys are like the Energizer bunny and they have really done marvelous work. We're doing things that were designed to essentially operate during the era of the Soviet Union that are today doing tactical intelligence collection that leads us to actionable intelligence on bad guys every day. Every day. And we're doing it with equipment that's 15, 18, and 20 years old.

So there's a lot going on in this business. I'm excited to be part of it, and I can tell you that there's a great crew of people out there who are committed to making this happen and improving our warfighting capability in the very near term.

So thanks very much. If you have any questions, I'd be delighted to take them. If not, I'll catch the E train home. Thank you.

**Moderator:** General Carlson, we have questions.

**General Carlson:** Okay.

**Moderator:** I can tell you that I asked him just before we came in here that the first question would probably be something like tell us all the secrets. He said it would be a very short answer. So we're not going to get to that one.

There are a lot of questions about the commercial launch business, as if we had any contractors in here. And so to make it a multifaceted question, tell us what you believe the current state of the commercial launch industry is and what opportunities could be there and things we can do to improve, not, and so forth.

**General Carlson:** The commercial launch industry is really none of my business, so I'll just blab for a minute

about it. I think it's going to be a very difficult, complex thing for rocket companies in this country to break into the commercial launch business. It will take some very, very aggressive salesmanship on their part. The reason is that we have lost that market and there are other people out there who have taken over and have now got a lot of credibility in that business, so it'll be difficult for us to break back into that business.

With regard to what we can do to make it more profitable, I think we can do a couple of things. One, I think as a nation we ought to step up to paying for the infrastructure required for launch; that's a national capability.

We fight wars based on the fact that we have domination in space, that we're able to use that high ground to whatever degree we choose or not choose to use it. So we ought to step up to the funding of that and to improving it over time. We have had very, very little capital expenditure in our launch ranges, our launch infrastructure, and so on. And so I think we ought to step up to do that.

Second, I think we ought to commit to long-term procurement of both a specified number of solid and liquid boosters. I think that would bring solidarity into the market. That would bring some stability into the industrial base associated with launch.

**Moderator:** So does that mean a commercial launch in collaboration? All government agencies getting together and creating a fund to provide for private industry? Or a government-based commercial launch which we would then contract out? More specifics?

**General Carlson:** No, I just think that the Defense Department and others, as charged by executive order, ought to fund the launch infrastructure. The infrastructure that you'd -- launch pads and the blockhouses and the integration facilities and that sort of thing. And we can charge the commercial vendors to come in and use it, but we ought to fund that so it's available to them.

I'm not suggesting that we form any great corporation or anything. I do think that we can do better in government than getting our launch requirements posted, and that's why I suggested a guaranteed number of liquid and solid boosters every year for the government.

**Moderator:** Do you feel that the present launch facilities are not adequate?

**General Carlson:** No, they're not.

**Moderator:** Okay.

**General Carlson:** We're working under very, very -- well they're not barbaric but they're sure limited conditions in a couple of cases where we're trying to get satellites ready to launch. And that's why we have, inside the National Reconnaissance Office, embarked on a processing facility of our own that's got the kind of room we need down at the Cape. When we have that, I think we'll be a whole lot better off. We'll be able to, for the first time ever we'll be able to cycle through space launches.

In other words, if I have Rocket A and Rocket B that are supposed to go off a month apart but something happens to A and I have to switch to B first, I can do that. Today I can't do that. So I have no flexibility once I've put a satellite down at the Cape, and we need to have that. So that's one of the kinds of things that we're investing in.

**Moderator:** You talked about collaboration, Sir, with General Kehler in terms of launch. In terms of R&D, is there an opportunity there to partner with others as well, pool resources, and try to create the same synergy that you're looking for in launch?

**General Carlson:** Absolutely. We have a great partnership and working relationship with the Air Force Research Lab. In fact, I was just out here maybe six weeks ago and met with General Paul Lakowski to make sure that all of our people understood the solidarity of that relationship. And we have worked in relationships with the Naval Research Lab. We have a great working relationship with DARPA, so we partner with them and we make sure that if we're doing something it either adds synergism to what they're doing or it's something that they are not doing that we should be doing and we collaborate to the point where I think we've got great visibility into what each other are doing.

**Moderator:** And you said NASA as well?

**General Carlson:** Yes.

**Moderator:** Okay.

**General Carlson:** Of course.

**Moderator:** So any consideration being given by the NRO to non-EELV low-cost private launch?

**General Carlson:** Yes. We launch almost as many small vehicles into space as we do large ones. In fact, we have a

payload going up on a private-launch vehicle here in the next six months. So we're open to that.

I have to have, though, for some of the payloads that I have from mission, I have to have a pretty large rocket. So when those -- today commercial vendors begin to get into that market then we'll have to decide on exactly how we're going to handle the -- whether we're going to introduce competition back into that market or not. As you know, the government decided that we weren't going to compete anymore, that we were going to have the ULA. So that will have to be a decision above my pay grade when it happens.

**Moderator:** Your world is largely hidden from the public. You did mention a couple of surprises when you came. Is there anything in particular that was not exactly as you expected?

**General Carlson:** Oh. When I got to the NRO?

Well I thought that the NRO had a lot more healthy science and technology budget. I was taken aback by that.

I was also concerned by the workforce and the fact that it is very, very difficult to keep somebody through the length of a program, and I think that many times that's important. In other cases we can deal with a three-year tour or so, but in some cases I just need to get the same program manager through the next milestone and then I can make a transition and that takes one or, in some cases, two more years.

Handling that gap has been a difficult job, and I understand why. I was in the Air Force; I know what the requirements are for promotion and advancement, the jobs you have to have and the joint hoops you have to leap through and so on. So I understand it, but it's just difficult to manage.

**Moderator:** There's a question here, sir, about the relationship you have with SMC, the relationship that you have with OSD and DNI, and I think it's probably unclear as to -- you talked about the two bosses. A little more on how that works and, I guess, who helps, you know, how does the budget work for --

**General Carlson:** How does our budget work?

**Moderator:** In terms of who supports the budget? DNI? OSD? Both?

**General Carlson:** We have money that comes from both the intelligence community and the military community, and

we have been successful in managing it for some time, and that is really not a problem for us to deal with, the military intelligence money or the national intelligence money, because we have people who have been dealing with that for some time. So that's not an issue. I don't know where else the questioner wanted to go. I apologize.

**Moderator:** Well, there was concern about relationship with SMC.

**General Carlson:** Sure. Well I have a great relationship with Tom Sheridan and with General Kehler. Of course I've known them for a long time, so that makes it pretty easy.

That launch that I showed you a picture of there, of next Monday night. That's the first rocket I've ever seen in my whole life. I mean that will go off. I will have never seen a rocket before. And I'm supposed to be the Mission Certification Official for that. That's like being the SOF if you've never checked out an airplane.

I invited General Kehler, General Sheridan, and General James to come and look over my shoulder. They have been with me all the way through the launch approval process up through this last readiness review that was conducted by General Sheridan last Wednesday evening, I think it was, when he did the flight-readiness review.

The mission certification review will be this Wednesday, and they will all three either be there or be there on VTC. They're arm-in-arm with me. They realize that they're not successful unless I'm successful. If this thing blows up on the pad, it's not just me that suffers; we've only got two pads. It's there problem too, so they don't want that to happen. They're not successful unless I'm successful and vice versa, so we work very, very closely together.

**Moderator:** You mentioned a little bit about the ground station issue, that perhaps that's a better place to look to solve the problems since the satellites stay up so long. So in data analysis and interpretation, does the NRO play a big role there and if so, with the additional information that's coming in and, I imagine, the bigger requests -- ?

**General Carlson:** Great question. There are really two answers to the question, with regard to data and what our role is.

Our role is to process data and get it to our customers, not to analyze it. That's the NGA's job or the NSA's job. I don't do that. But I do process data.

And the one thing that you all know, probably better than I do, and that is the amount of processing, and the power of processing, and the capability of processing in the last just five or ten years ago has gone up exponentially. So even though those are the same ones and zeroes, I can do today exponentially more than I could do with them just a couple of years ago even.

In fact, I just had a meeting today with the Director of the NGA, the National Geospatial-Intelligence Agency, and talked about this issue. That is, the definition between preprocessing, processing, and analysis is beginning to gray. And because I can do so much with that data, we are working inside our ground stations to have direct contacts, and we have a joint team in those ground stations with NGA, NSA, and us.

We're working directly with the combatant commanders to not get them analyzed data, but to get them highly processed data very quickly. Right now it's not uncommon for a captain in the AOR to get on the chat room -- this is a captain who is out in the field next to a helicopter or a Humvee -- get on the chat room and say help, I need a picture of this or I need an analysis of this or I need some work done on this. Can you help me? And with those collaboration cells that we have in each of our ground stations, we are able to do that and do it predictably very, very fast.

**Moderator:** The captain is going directly to you?

**General Carlson:** Directly to the ground station. That's right. But because there's a collaboration cell in there of NSA, NGA, and NRO people, I can process the data, I can get it right there to the analyst, and we can get an answer back very, very quickly.

**Moderator:** Well let me tell you it's clear that General Carlson is the right guy for this job, and thank you very much, sir, for this presentation.

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