2015 Air and Space Conference

Acquisition Updates: F-35 and KC-46 Programs
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MODERATOR: Good afternoon, everybody. I'm [inaudible] Executive President of the Air Force Association. I don't know about you, but wow, you just came out of [inaudible].

On behalf of the Air Force Association welcome to Air and Space Conference 2015. The title of our next forum is Acquisition Updates, F-35, and KC-46 programs. Today's panel will provide program updates on production readiness and sustainment preparations for the new tanker and the F-35. Our panelists include our moderator, Lieutenant General Arnie Bunch, Military Deputy, Office of the Assistant Secretary of the Air Force for Acquisitions, Lieutenant General Christopher Bogden, the Program Executive Officer for the F-35 Lightening II, Joint Program Office, and Brigadier General Duke Richardson, Executive Officer, Air Force Program, Tankers. Each will make a short presentation and we'll open it up

for questions. You do have cards on your seats and if you'll fill them out and pass them towards the isles I will pick them up.

Arnie, over to you.

GENERAL BUNCH: All right. Good afternoon, ladies and gentlemen, and welcome to the AFA acquisition panel discussion. Yesterday you heard Secretary James speak of reinventing the air space nation and this afternoon you're going to get the opportunity to learn from two of our sharpest PEO leading our top two priority teams and largest acquisition programs, the F-35 and the KC-46. I have been trying to figure out why I'm serving as your moderator today. At first I thought it might be my New York accent, but I decided that probably wasn't it. So then I locked onto the fact that I'm probably the only senior acquisition leader that has less cranium coverage than Duke Richardson [laughter], so we wanted him to feel comfortable up here and not be suffering from hair envy while we did this. So, Duke, I'm glad I could be there for you, bud.

So Lieutenant General Chris Bogden and Brigadier General Duke Richardson are two outstanding officers and professionals that I've had the opportunity and the privilege to work with. As you know the F-35 is the free world's tactical aviation for many, many years to come and it's critical to our Air Force and many air forces' success in the future as we protect freedom around the world. And the KC-46 is critical to our ability to continue to provide global reach, global power, and global vigilance, and global mobility.

So with that I will turn it over to my test pilot school classmate, Chris, and I'll let you to give your remarks on the F-35.

GENERAL BOGDEN: Thanks, Arnie. Well, good afternoon. They told me I had 15 minutes to tell you about the biggest, most complicated program I have ever been on, so this will be fast and furious. I just want to give you some highlights. Because more importantly some of your questions to try and answer when we're done, so I'll try and stick to my 15

minutes or so.

I'll like two charts which are helpful, but I can talk for hours on any one chart, so be careful. So here's the first chart. So I used the bottom right chart since I've been on the program for two and a half years as the PEO. And usually the first line on the bottom line of the first bullet has always been slow and steady progress. We are passed slow and steady progress on the F-35 program. We are moving into rapidly growing and accelerating. And that's a tribute to industry and to the whole enterprise being able to move past some difficult times on the program and get us to a point now where we are looking at all aspects of the program that are actually growing and accelerating rapidly.

So let me give you a few examples of what I'm talking about. First, we're moving from a very large SDD program, development program, that all totaled is going to end up being about $50 billion. We're moving from that to what we would consider to be an F-35 modernization program. And that program

necessarily has to skinny down because the services and the partners simply cannot afford a development program of the same magnitude and cost that we have today. So our challenge in the JPO and our challenge to industry working with our service partners and our foreign customers is how do we get the modernization that we need to keep the F-35 relevant for years to come and do that in a way that's more efficient and effective and affordable to them, because there are a lot of things that can be done to the F-35 in the future because we built it with a lot of growth potential. Now we have to make sure that we're doing the right things that are affordable and most relevant and useful for the war fighter in the future. And taking that big beast called SDD and transitioning it to something smaller and leaner is something that we're going to embark on over the next two to three years. And that involves change from industry that involves change from the JPO that involves changing our processes and our CONOPs and a lot of ways we do business in the acquisition world on the F-35 program.

Second is a production ramp. As you know for a number of we held pretty steady. The last three lots of airplanes have been around 30-40+ airplanes and that we've purchased and fielded. And now it's a necessary pause in the production ramp of the program to allow many of the capability crew we're developing to catch up quite frankly. And that wasn't a bad thing. But we're at a point now where we can see the end of SDD, we can see the end of development, we can see what that final block of airplanes in the 2018 timeframe looks like for the F-35 and we are timing it quite well now to start a big production ramp up. In the next three years we will triple production, we'll go somewhere on the order of 40-43 airplanes a year to buy and fielding something over 120 airplanes a year. That is a big deal. It gives me some pause. We have to think really hard about how we do this because we're putting a lot of pressure on the supply chain. So today the supply chain is doing a lot of things for us. One, they're getting ready for this big production ramp up. Two, now that we have 130+

airplanes in the field we have more spares requirements. Three, now that we have more airplanes in the field, we have repairables that have to go back to the OEMs because we haven't fully stood up our organic capability in North America or in our other regions. And we also have a big mod program that I'm going to talk about where we our OEMs need to provide parts to modify previous airplanes to retrofit them to the newest capabilities. We're asking them to do that all at once. And that is a big deal. And it is hard and we have to ensure that all levels of the supply chain, they are ready to do that and they can handle this coming ramp of production as well as all of this extra work.

And finally the last thing that's growing and accelerating at a rapid pace is our fielding and our global sustainment. So in the next four years -- today we have I think about 130 airplanes operationally in the field and 19 test airplanes. By 2019 that number goes up to about 500. In between now and 2019 we will add 17 more operating locations for

the F-35. So in the next four years we're basically opening up 17 new bases. And a good percentage of those are overseas, in the Pacific and in Europe. And when we start putting airplanes out in the Pacific and in the European theaters we have to have the ability to sustain them out there. It makes very little sense to try and do that all from the shores of the United States. So we are trying to build up a global sustainment capability, both in Europe and the Pacific that can be used to compliment the sustainment enterprise that we're building here in the U.S. Our partners and their industries have a big role in that because many of them want to participate in that global sustainment, many of their industries have earned the right to participate in that by being part of the production program. So we are concentrating between now and 2019 on building across the globe these three regions of capability. It's a daunting task. There are all kinds of things that you don't think about normally, like tariffs and taxes, and moving pieces and parts all around the world, and

global supply chains and things like that. So it's a big undertaking, but it's coming at a good time in the program and it's an important thing to ensure that when we have those 500+ airplanes out there in the next 4 years we'll be able to sustain them.

We are making good progress on all fronts of the program, but the program is not anywhere near perfect yet. We have issues, and we have technical challenges, and we have business challenges, and we have fielding challenges. I just put a few of them up there. We can get into the details maybe a little bit later during the Q & A, but our ALIS System, which is our maintenance information system, it has great potential, it is just not achieving its potential right now. And the result of that is we've put a lot of burden on the war fighter for many, many work arounds with the ALIS system. So over the next few years as we build up that global sustainment system we have to ensure that ALIS grows and is as capable as we can get it to be for all those airplanes.

Reprogramming labs. We don't talk a whole

lot about those, but they are coming to the forefront right now. Reprogramming labs are the laboratories that build the mission data files for the F-35. And those of you that know modern fourth or fifth generation airplanes, you're pretty much only as good as your mission data file because that's where your threats are, that's where information about the AOR that you're flying is. We on this program are actually building four separate reprogramming labs, one for the U.S. services, one for a number of our European partners -- actually two for our European partners at Eglin Air Force Base, and we're standing up a separate series of facilities at Point Mugu to take care of our FMS customers. So we're in the process right now of trying to build up that capability across all of our partners. And the only one we have up and operating right now is the U.S. reprogramming lab down in Eglin. So the pressure is on that team to try and create mission data files for all of our future customers in the next few years until the other reprogramming labs are stood up. This

is not a great technical undertaking, but what it is is it's a scheduling issue and it's a capacity issue, and creating that throughput capability because an F-35 doesn't fly without a good mission data file. It's as simple as that.

Aircraft modifications. If you look in 2019 when we talked about having almost 500 airplanes out in the field, I would ask you to guess how many of those airplanes are in the final 3F hardware and software configuration. The answer is none, zero. So every single airplane we're producing today, and every single airplane we continue to field and produce over the next two plus years, and all the ones we've already produced, have to go through some kind of modification program to get them to our full, final block hardware/software capability. That's hundreds of airplanes. Being able to sequence those in the depots, being able to get the kits ready, being able to make sure that the services and the partners have the airplanes they need to train at the same time as bringing those other airplanes down to retrofit and

mod them is a big management challenge. We're working with industry right now to put that plan in place. Our commitment to the war fighter is that by the end of 2018 every single airplane that is owned by the services, the partners, and the FMS customers, if they choose it to be in the full 3F configuration, hardware and software, we will give them that opportunity. It doesn't mean that they'll have the money to do that, but we will have a plan in place that every single one of those airplanes will get upgraded. And that's our goal. And that's software. You can't ever not talk about F-35 and talk about software.

The good news is we used to be in the business of three different blocks of software on the airplane, 2B as you know, 3I and 3F. We're pretty much out of the 2B business now. In the next three months we're going to be out of the 3I business. And for the next two years we can solely concentrate on that final version of 3F software, which is a good thing because we can focus all our efforts there.

I can't not talk about the international

participation of the program. The partnership is strong and getting stronger. As a matter of fact in the next two days we will have what we call our Executive Steering Board where the partner nations and the U.S. services get together for two days and we do that on a regular basis every six months and this is our big one, every six months like I said. And they're all here and they're excited about the things that we're doing and the partnership could not be stronger. And I would expect over the next few years you see our FMS customers to also grow.

Next chart. Okay, last piece for me. My number one event priority on the F-35 program today is 1 August 2016 in getting the Air Force what they need to declare IOC. I will mortgage the farm on the rest of the program to ensure that the U.S. Air Force has what they need to declare IOC. You can see the what and the where and the when. The Air Force has been kind enough to give us a window of times for them to declare IOC from 1 August 2016 to the end of 2016. We want no such window. We are going to be ready on 1

August 2016 and we will do everything to be ready for that. We do have some concerns; they're not unlike the bigger program concerns. The software that the Air Force is going to use is our 3I software, and as I said we're not done with that yet. We'll be done within the next few months. When we get done with that we'll feel a little more comfortable because that's software that the Air Force needs to declare to IOC. We already talked about aircraft modifications. It's a big program, it's a big issue. There are modifications that all of the IOC airplanes in the Air Force are going to need, and we are in the process of getting those airplanes modified now and it's a question of the throughput and getting as many as we need in the right configuration to Hill Air Force Base by 1 August. We already talked about ALIS. No need to say that. We already talked about the mission data files and the reprogramming labs and how it's not a technical challenge, it's really more of a schedule challenge on that.

And the main expanding piece, although the

Air Force came up with working with the JPO and industry, a way to ensure that Hill Air Force Base has the right number of maintainers in the short-term, what they've done in the short-term is have to use contractors and other places, and that's not good for the Air Force. We need to be growing many more organic maintainers on the F-35 program, and this was a simple stop gap measure to ensure that at least Hill Air Force Base has enough blue suiters for when they declare IOC. And I would hope that in the future the Congress will help the Air Force in getting out of that conundrum of using contractors on flight lines and help us grow more blue suit maintainers because that's what the Air Force needs.

So I'm about out of time. It's fast and furious on a big program like this, but I can tell you from my perspective, I've been the PEO for about two and a half years now, I've been on the program for about three years, what we are starting to see, some good changes in the program. This is like a big ship and the ship was heading in one direction and it takes

a really long time to steer a very large ship in another direction. That ship is moving in a much better now. Doesn't mean we don't have challenges, doesn't mean that we won't continue to have challenges, but it's not quite the same program it was five years, it surely not the same program it was ten years ago. And quite frankly it's not even the same program it was two years ago because we are growing rapidly and accelerating.

So thank you very much and I will look forward to your questions.

SPEAKER: Duke, over to you.

GENERAL RICHARDSON: Okay. So I can probably do this a little faster than that. Can you all hear me okay? All right. So here's my bottom line. General Bunch, tell them you want a one a half when you're at the barber and you'll get longer hair, okay. That's the first thing. [Laughter] And KC-46 is not the most complex program. So there. Any questions? No, just kidding. [Laughter] Okay. So I'm going to give you a quick [inaudible] and see the

real action is chart nine, but I'm going to ask you to kind of be patient with me a little bit, I want to go through some other stuff first. On behalf of a lot of folks in the government that are working KC-46, Colonel Chris Coombs -- Chris raise your hand -- who works tirelessly on the program every day. He's the System Program Manager. He's got a team, a program office back at Wright-Patterson, we've got the Air Force Test Center involved, we've got the Life Cycle Management Center staff involved, we've got the Air Force Sustainment Center involved, standing at the depot, we've got the FAA involved. There are a lot of folks involved in the KC-46 program, so we do not want to suggest that it's any single person or any single office. And so we're all bringing this thing home. And so I want to kind of walk through that a little bit.

You know, one thing that I noticed when I first took this portfolio over was that the aerial refuelers seemed to be the unsung heroes of the Air Force. The Chief talked about this during his -- when

he talked about the number of fuel offloaded in the last year, and I definitely found that to be true. In fact when you look back at history, in 1929 when the Question Mark broke a steady flight of almost I guess about six days, of course the flight crew, the crew of five all got Distinguished Flying Crosses. And you know what the tanker crews of the two tanker aircraft and maintainers, you know what they got, right? They got nothing. Now later on they were actually recognized. So I'm going to spend a little bit of time right up front talking about some global mobility airman that I'd like you to meet that are very central to the Legacy platforms, the 135 and the 10. Because what I've quickly learned in my year on the job is that, you know, really the tanker fleet puts global in global [inaudible], reach, and power, all three. Next chart. And next chart.

So here are a couple of pictures. I got an opportunity about two months ago to take a flight in a 135 which seemed like a smart thing to do if you're the tanker, you know, figure out how the legs, the ops

work. And I've got Major Jason Helmick on the left from McConnell, and Captain Chris [Markery] on the right. And I'm not going to show you their faces, but I am going to show you the faces of the enlisted men in a few minutes. This right is a KC-135 Block 45 aircraft. So it's our newest one. We delivered 13 of them. They've got updated flight directors, they've got a radar altimeter, they've got electronic engine displays. And they're pretty happy with them by the way. So when I took this flight I didn't realize that they were going to try to sell me on this because I think that I was about to make a Milestone C decision on Block 45. And they were very quick to let me know that they were very, very happy with it. Next chart. And next.

Here is some real action here. On the left you've got the crew chief of the mission that I went on, Staff Sergeant Kelly [Schwab]. She walked me through her whole airplane, knew every single detail. I was extremely proud of what she did. It was a real pleasure to get to spend some time with her. Next

chart. And then of course this guy here, Senior Master Sergeant John Wallman. Really, he's been in the Air Force 27 years. He's been doing air refueling for 18 years. So I got to go back there and lay next to him for quite a long time. We had about a five-hour mission and he's basically laying down with his chin in a little rest. And I don't know if it shows, but you've got to love the sticker, peace through strength, B-52 on his headset there. So after that mission -- I asked hey, do you mind if I sit there and try that. He said yeah, you can do that. So I actually got to fly that and it turns out I was amazed at how much arm strength it required. Because on the 135 it's all cable driven, and depending on how it's rigged each one can fly just a little bit differently, but he said I did okay. I don't really know. I did a couple of figure eights. By the way I did not make any receiver contacts, which is probably a good thing.

SPEAKER: Especially not with PF35.

GENERAL RICHARDSON: Next chart. So then we get to the KC-10 which is of course is not 53 average

years age, it's only about 31 average years age. I also went up to McGuire to fly out of McGuire on the KC-10. Next chart. And so here what you can see what we did during that flight was -- the first thing we did was we actually received fuel from a KC-135, because of course the KC-10 can -- all the KC-10s can actually act as a receiver aircraft. That was pretty cool. I'll tell you, when you're up there on the flight deck and you see that boom coming at you, at the wind screen, it's a little harrowing. And you kind of quickly, especially if there's turbulence, you quickly realize this is not necessarily a safe operation. These guys execute it with real profession. If you go back to where the real business is done, instead of laying down in the 135, the KC-10 boom operator is actually sitting in a chair. The window is a little bit larger and he's got a pretty sweet view back there. And then of course you can see the tail flaps because at McGuire we've got both an active wing as well as an Air Force reserve wing. Next chart. And next.

Staff Sergeant [Pliess], he's the crew chief of the KC-10 that I went on. Same deal, just like Staff Sergeant Schwab, he walked me around the jet, told me everything. By the way this jet had just came out of the depot so he kind of told me about some things that I needed to address when planes come out of depots [laughter] which I've already done. So that was really interesting, a lot of pride in his mission. He just absolutely loved his airplane. And next chart. Next -- there we go.

Okay, this is a good one. So I'm actually back there. That's me and that's Captain [Struggner], and here's Senior Airman Jeremy Robinson. He's actually an instructor boom operator. So he really knows what he's doing. He's only been in the Air Force about six years. Now what's funny is, you know, I had such success on the 135, I said hey, Senior Airman Robinson, you mind if I try it. He laughed and said no, I can't let you do that. [Laughter] So I don't know if Sergeant Wallman probably called and alerted him, but he was very, very professional at

what he did. So we refueled C-17s, you know, from McGuire, and we dragged them up to Pease. What was amazing about this young man was his skill at -- and when you look at an airplane at the receptacle you'll see a guideway which is perfectly acceptable to hit with the boom, and then you'll see a space outside the guideway that they're not supposed to, and they basically get disqualified if they, you know, scratch the paint. And this particular C-17 had a lot of scratch marks. I will tell you Senior Airman Robinson didn't even need the guideway. He plugged the hole every single time. It was pretty amazing. Next chart.

And so this is what they've been up to. The Chief mentioned this. I'll have to discreetly let the Chief know his staff is just a little bit. We're sitting right now at about 202 million gallons for the fiscal year. That is well in excess of last year. Last year we hit about 144 million gallons. So you can see that we're pretty busy. What's interesting about this is 80 percent of that figure is in the AOR.

So if you wonder what your refuelers are doing, they're pretty darn busy. It's quite stark. And then you can also see some of the other multi mission work that they're doing as well. Next chart.

All right. So I know that's not why you're here, but I thought it was sort of important to let you know that we've got 2 Legacy platforms out there, 455 tankers that make I think the United States capability very unique. It's not the capability so much it's the capacity. And you think about 455 tankers, and you think about at 15 a year it will take a very long time to replace that fleet which is why KC-46 is so important. And you can kind of go through the nine KPPs. These are the things that if we don't get it right we stop the program. So these aren't all the requirements, but these are the ones that are the most critical requirements. Now I'm not going to walk through them all because General Bogdan will probably kick me under the table, but just real quickly, KPP number one, the KC-46 has had the capability to take both boom and drogue on the same sortie. Right now we

only have -- the KC-135 in order to do that needs to actually put a boom drogue down through, and when the boom drogue goes on it, you can't be going boom missions, except for about 20 of them that are plum for wing/air refueling pods. So that's a big one for us. Another one that's a big one is all 179 KC-46s will be able to take on fuel. Right now we only have eight KC-135s that can take on fuel. And interestingly those eight are the most heavily taxed in terms of flight hours. Those eight will be the ones that time out first. And that gives you a sense of how important that flexibility is to the war fighter.

Quite an extensive suite of survivability and defensive system and night vision capability that's on the KC-46. So it will LAIRCM on it, every aircraft, it will have an RWR, and it will have an [inaudible] on it. It will give me 16 feeds, it will have a military data network on it. It will take all that information, it will fuse it, and it will display it on the tactical and situational awareness system

that both pilot and the boom operator can see.

And the last one, just very quickly, is the multi-point AR. So every single -- all 179 KC-46s will be plum to have multi-point refueling pods place on the wing tips. So that's a pretty big deal for us.

So that's the KPPs. In spite of what you're reading about the program we are definitely struggling with schedule, but I will tell you we are not struggling with performance. Next chart. Next chart. There we go.

Okay, so very quickly, a couple of pictures of the KC-46. This is actually EMD-2 swapping places with EMD-1 on the fuel dock. The fuel dock is where we really extensively check out the fuel system, all the pumps, valves, everything to do with the aerial fueling system on the ground. The billage of jettison fuel. All that stuff is done on the fuel dock. EMD-2 which is the first full on KC-46 just finished fuel dock. That is a big deal. And so it came out of fuel dock, it is now in preflight. Here's EMD-1 at Boeing Field. This is -- you know, there's a KC-135 taxiing.

So here is I guess -- we call that I guess a grandmother and here's the child right here ready to hopefully take over very soon and take the reins. Here's the EMD-1 taking off. You can see the EMD-1 has been flying with both a mass representative boom and WARPs. EMD-2 by the way will not have mass representative. It will actually have the boom and the WARPs on deck. EMD-1 right now is up to 151 flight hours, so it's generating almost at will. There was a large concern about the program, could we generate the sorties that we need to. In August we had a fly rate of -- I think it was about 94 flight hours. In September we're tracking right now at about 75 flight hours. So we're definitely generating the airplane when we need to generate it.

And then here's EMD-4 with the power on. You get a pretty good sense for the 787 south cockpit, which is calculated at the 787 software suite -- and it's not the suite but the software tools that make that, so fully digital architecture in hardware.

Okay. So here's the chart that you probably

want to see. Next chart. And I'm going to walk you through this, a lot of acronyms on here so I'll walk through them quickly. And you can see the color coding. EMD-1, initial air worthiness and flutter test. It's actually finished what it needed to do for initial air worthiness, you know, basic handling qualities in flutter for -- not just flutter but also [inaudible] on war pods which is a big problem for the KC-767 program. We finished that successfully. The WARP redesign work is working really well. That work is done -- EMD-1 is still flying by the way. It's doing FAA flight tests. But what it needed to do for Milestone C, EMD-1 is complete with. Then we go to fuel dock 1 which starts EMD-2. I'm going to mention to you that fuel dock 1 has been completed for EMD-2. In fuel dock 1 what we're doing on EMD-2 is basically checking out the entire fuel system except for the centerline drogue system, the boom, and the WARPs. That's all happening under fuel dock 1. We just completed that. You might have read about fuel contamination issue, that's where that was discovered.

So we had to stand down for about 30 days, rebuild the airplane so to speak, go back into fuel dock 1, and complete it. That's been done. In fact you'll see the next milestone is the first flight. And so I will tell you -- I can share with you today that first flight is scheduled for the 25th of September. And I think that's remarkable. Dr. LaPlante charged us to come forward with a reasonable range for a first flight back in April. We briefed him the results of the schedule risk assessment and we said July to September. Since that time we had, I would say, sort of two technical issues crop up. One was the fuel contamination issue. In spite of those issues we're still going to hit that range I guess as long something else doesn't come up. But right now we're really in preflight so that's something that we know how to do really well. And so you should hopefully see an article or announcement on first flight occurring on the 25th of September. And then once that first flight occurs we'll go into initial air worthiness for EMD-2. That's a little bit different

than EMD-1. What we're going to do there is we're not going to have mass models of the boom and the WARPs, we'll actually deploy the WARPs. So our plan right now on the second flight is to unstow the boom and see how it flights within the Milestone C envelope. We'll do the same thing shortly thereafter, we'll unreel the drogue systems and see how they're doing, make sure that the catenary curve on the hose looks good, make sure that the baskets aren't spinning, you know, make sure that the reels are working. Do all that sort of work during initial air worthiness for EMD-2. So that's actually different -- that's a different work scope than here for number 1.

Then we'll go back to fuel dock. So we'll purposely but EMD-2 back on ground. And this time at fuel dock we're going to exercise the rest of the fuel system that we didn't exercise, specifically the boom, the WARPs, the centerline -- when I say WARPs, the wing air refueling pods -- the centerline drogue system, we'll exercise that when we fuel dock number 2. After we successfully complete that we'll go into

free air stability testing. We'll again unstow the boom, we'll again unreel the drogue systems. We'll fly the envelope that we expect to fly in the Milestone C demonstration flights, make sure all that stuff is behaving properly. This is where we give the receiver aircraft confidence that they would want to actually receive fuel from the KC-46. We're going to make a lot of money right there. You know, make sure that folks are comfortable heading into the area of refueling depot. This is the largest part that really makes up the Milestone C demonstration. And so you can kind of see what we have to do for Milestone C. The ATB is very specific. And by the way, we haven't changed the Milestone C criteria at all. The ATB has not been rewritten. We're doing all the testing that the ADM requires -- excuse me, I meant the Acquisition Decision Memorandum. We'll fly a light, fast aircraft off the boom, we'll fly a heavy aircraft off the boom, we'll fly a light, slow aircraft off the boom, and then we'll fly a fast drogue and a slow drogue off both boom systems, the WARPs and also the CDS. It's

important that we do those different combinations because these different kinds of aircraft operate from different parts of the envelope. C-17 being a large aircraft has a tendency to push on the tankers, so that has different aerodynamic affects. So once we do these five, these AR demos, a lot of the risk will be burned down on the program, which is why, you know, Mr. [Kendall] will be using this information to guide his decision.

I skipped a couple of things. There's an airlift ground demo that we have to do also to get after all the parts of the requirements that are associated with airlift, you know, aeromedical patients, passengers, and cargo. And so actually that started today. Colonel Coombs?

COLONEL COOMBS: Yes, sir.

GENERAL RICHARDSON: That started today. So that's going on. We're actually doing that on EMD-4. Red is not bad by the way, it's just a color that we chose. And then there's a lot of mission system verification work because I mentioned the thing has

quite a bit of other capabilities in terms of RWR and LAIRCM and military data network. I mean it's got a NIPR and SIPR and all kinds of cool stuff on it. That stuff will be done through a combination of laboratory work and ground tests. That's been going on -- that's going real well and so it will continue. And of course the big monster here is the documentation. There are 30 separate 5000.02 documents that we have to get all wrapped up. Those are well on their way. At some point Colonel Coombs is going to hand me a very large stack of paper to start reading and hopefully some coffee to go with it. And then we'll go into about a 60-day review period leading into Milestone C. We had previously shown a Milestone C range of January to April. It is looking like based on this workload that it's looking like it's more toward the April end of that range. What's important to remember is that as soon as we get out of Milestone C we're going to do an LRIP 1 award which is 7 aircraft and then an LRIP 2 award will occur almost immediately afterwards. I do want to point out that

LRIP lot 2 is fiscal year '16 funding. So if we get into a CR situation, this will create a very large problem for this program. As you know we can't go above fiscal year '15 quantities, and I don't have a contract that says I can award seven aircraft. That's a problem that we need to fix. So this contract that we have is a very nice contract in some ways, but it's also fairly stringent in terms of what it requires of the government as well. It requires funding stability and requirement stability. Up to this point we have delivered both, and we have to do that in terms of getting 12 aircraft appropriate and authorized in lot 2 there. Next chart.

Very quickly, hopefully if you invite me back next year I will give a briefing called KC-46, Road to IOC and I'll give you a lot more detail about these four locations, but this is McConnell. They're scheduled to get 36 aircraft. They'll start getting their aircraft in late '16. It might be early '17 depending on how the schedule sorts out. Pease Air National Guard Base in New Hampshire scheduled to get

12 -- excuse me, that's not Pease, that's -- help me out Chris.

GENERAL COOMBS: Altus.

GENERAL RICHARDSON: Altus. Excuse me. They're scheduled to get eight, and then Pease, they'll be getting 12 KC-46s later. And then you can see some of the MILCON work that's going on. Next chart. I think I'm probably over time.

So hopefully I've kind of painted a picture that the Legacy Fleet is out there operating every day doing wonderful things. The KC-46 program strategy is strong. We are not going to change it. We are executing to it precisely. Dr. LaPlante pretty much requires that we do that -- not pretty much, he does require it. So there's no government cost issues to be worried about, performance is on track. We know of no technical showstoppers here. It's taking longer than we want, there's no doubt about that, but we are making I would say slow and steady progress to use General Bogden's terms there.

So with that I will stop and I look forward

to your questions. Thank you.

MR. BUNCH: Okay. So I'm going to serve here to read and I'll direct us to who it is. And we're going to -- we're running slightly over the time that we originally planned, but we're going to take about 10 or so minutes for questions and get as many as we can and then we'll see where we go from there.

So the first one is for Lieutenant General Bogden.

QUESTIONER: What are the U.S. Services' perceptions of and the outlook for the block buy approach?

GENERAL BOGDEN: Should I guess who asked that question? [Laughter] In a block buy approach from lot 12, 13, and 14 requires that the U.S. Services put up front money in FY '17 for what we call economic quota quantity, some upfront money for the three lots of airplanes. The problem we have here, and it's a JPO problem and not a surface problem, is that we are outside their timelines for the budget changes for FY '17. They have already delivered their

budgets to OSD and in order for them to put that money up they would have to break their budget basically. We recognize that, we understand that that is a problem. That does not mean that there is not a solution to this problem. So we will in the JPO continue to press continue towards a lot 12, 13, and 14 block buy. We'll work with the services, the partners, and our OSD counterparts to figure out a way to minimize if any all impact to the services on their '17 budgets because there is a good bit of savings to be had if we do this by a multi-year or block buy, and we would hope to work with them and OSD and the partners to figure out how we can do that.

GENERAL BUNCH: General Richardson, given all the schedule program pressures have you cut corners and have you changed the overarching strategy for the KC-46 program?

GENERAL RICHARDSON: No. [Laughter] I think that's a great question. So this program was founded on a basic set of tenants I think are worth going over. Number one, war fighter, stable war

fighter requirements. We've not changed requirements at all. In fact I couldn't change them. Dr. LaPlante is the only one that could change, but I would probably say that if he wanted to he would certainly consult with the Chief, the Secretary, and Mr. Kendall. Number two it's an FAA-type certified airplane. Okay. So almost everything about this airplane is FAA-type certified. And so we think that is going to give us great leverage over time in terms of sustainability of the platform. That also requires that all the parts of the subsystems on it are FAA qualified, and that's part of the reason for delay, would be getting all the subsystems of the fuel system FAA-qualified. The next one is that, you know, we go through a government performance verification review process, that's where we actually get involved in our with our development testers to make sure that the war fighters requirements are met. That's different than the FAA's requirements. That's a basic tenant of the program.

Another one is that there are very few

government control decision points. What does that mean? It means that Boeing has wide latitude for determining the work that they have to do and also the sequencing of that work. And so if you kind of look at what's in front of us, we have Milestone C, we have operational test ratings review, and we have full rate production. That's it. Aside from those things, Boeing decides what work needs to be done and when.

Another one that's worth looking at is cap government liability. Many folks know about the fact the government liability on the development program is capped at 4.9 billion. I would also ask you to think about every lot, all 13 lots of the plane were also part of the original competition. The first two lots are a firm fixed price, the next eleven lots are not to exceed with inflation enticements. So in a sense this entire program is capped. That's a good situation. We can't break the contract; we don't intend to break the contract. What we've got to do is do our part in the Air Force, and that is hold requirements firm and make sure that the funding keeps

flowing. And that's what we've been doing.

So hopefully that answers that question.

GENERAL ARCHER: Okay. Lieutenant General Bogden, is the F-35 the right airplane for the United States Air Force to be buying 2030 given the emerging A2/AD environment and the F-35's range?

GENERAL BOGDEN: So as I mentioned very briefly in my brief, the F-35 has significant growth capability, both hardware and software and sensors and fusion. So from that respect we believe that the F-35 has a very long and relevant future for threats now and well past 2030 in a number of areas, electronic warfare, electronic attack, stealth capability, fusion of information and situational awareness. So from our perspective we believe, the JPO and the Air Force believes that we can keep this airplane relevant for a very, very long time. Relative to its "range", today an airplane has a very [inaudible] that requires you not to carry stores or externals because in that environment you want to be as stealthy as you can. There is nothing that says in the future if you're not

in that environment you can't hang things off this airplane, whether it be weapons or fuel tanks or anything else. And the airplane is now refuelable. So I'm not quite sure why someone would question the range of the airplane. Today this airplane relative to some of our Legacy airplanes actually goes further faster and carries more weapons than a lot of our fourth generation airplanes. So we think it will be relevant.

GENERAL BUNCH: Okay. I got about three on this one, Duke, so I'm going to try to put into Arnie's words to try to sync three of these together. How confident are you that Boeing is going to meet the August 2017 RAA date given the slips and the difficulties you've encountered, and what happens if they don't?

GENERAL RICHARDSON: Boy, another good question. How confident am I? I am confident -- I would say I'm cautiously confident, if that's a term. Maybe I just invented a term there. You know, if there is no doubt that the schedule margin is gone in

the program, and I think if you look at what the Secretary and the Chief have been saying, they're not happy with where we're at on the schedule, and neither am I. And so we've eaten up all the margin. Now I'll leave a couple of things with you, a couple of thoughts with you though. Number one, Boeing is a large company -- statement of the obvious. They've got deep resources at their disposal. They just brought in Scott Fancher who's the Vice President on Boeing Commercial to make sure that Boeing defense has any resource they need to bring it in. I tell you we're already seeing an impact. When the fuel contamination issue hit I thought it was going to take much longer than 30 days to get that airplane back out on the fuel dock and Scott Fancher was able to bring resources in from Boeing Commercial, additional mechanics, and they actually got that airplane built very, very quickly, so that's one example. I think we're going to continue to see those sorts of things. So I think I've got a very committed industry partner. They understand the terms of the contract, and as long

as they're going to run at it, I'm going to run at it. So I'm not going to give up on them. Obviously as time progresses we'll continue to make sure that there's realism in that confidence so it's not just misplaced. But we do believe that with the resource pool that they have that they can get there. You know, if we continue to fly at the rate we're flying number one, once number two gets up I think, you know, we'll -- you know, if we can demonstrate that kind of a fly rate -- because that was a criticism on the program initially. Another thing that's, I think, worth looking at is we've got five different system integration labs that we think it burned out quite a bit of the risk. We think that's going to bode well once we get into flight test. Software is not a problem on this program.

So there is a lot of stuff that's going right on the program, so I'd say I'm cautiously confident or cautiously optimistic that they can meet RAA.

GENERAL BOGDEN: Can I make a comment?

will spot you six years because that's how delayed we have been, eventually getting underneath that.

[Laughter]

SPEAKER: Well, thank you to all our panel members today for the presentations and the update. We very much appreciate you being here. We will break for coffee for approximately 30 minutes, so be back by 4:25 for the last sessions of the day. Thank you.

[Applause]

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