Major General John Thompson

AFA - Air and Space Technology Exposition

“KC-46 Requirements”

17 September 2013

Maj. Gen. Thompson: -- Every day in our United States Air Force, all around the world, tanker crews, pilots, boom operators, maintainers maintaining the KC-135 and the KC-10 fleets, are conducting, I don’t know about 150 sorties a day, 450 aircraft refueled a day, keeping the global in global vigilance, global reach and global power.

If you look at it from a numbers perspective, there about 2700 active duty, Guard and Reserve tanker pilots in our Air Force; about 1500 active duty, Guard and Reserve tanker boom operators; and thousands of maintainers that are keeping those aircraft aloft.

The KC-135s that they’re keeping aloft are 51 years old. You’re looking up at me. Yeah. Hey, I’m running the half marathon at Wright-Pat this coming Saturday, but I’m 51 years old. And I guarantee you after the race I will not feel good. And Sunday morning when I get up, I will not feel well.

Our KC-135s are fantastic weapon systems. They’ve been fantastic weapon systems for over 50 years. But they’re long in the tooth and our operators and maintainers need something new and better.

Our KC-10s are coming up on 30 years old. So many people are walking around the floor of the Expo Center here. How many people have seen some ROTC cadets? Those ROTC cadets are perhaps a decade younger than the KC-10s that are currently flying and they will fly them when they get on active duty.

With that as a backdrop of how important tankers are to our Air Force, what they do every day in terms of passing gas to U.S. Air Force and other DoD allies around the world, let’s talk a little bit about the next tanker the KC-46.

If you take a look at this chart over here, there’s the Question Mark (type of plane) for the -- specifically the Question Mark mission. That’s not the Question Mark there because you can tell because it’s dangling a hose beneath it. That’s one of the Douglas bi-planes that refueled the Question Mark. Then going from left to right, up is the KB-29, our nation’s first tanker, followed by the KC-97, the KC-135, the KC-10, and I know it’s not a great picture, we have some better pictures coming up, but that’s a KC-46 in the upper right hand corner.

So if you want to think about it, and I’m sure there will be lots of discussion as we proceed through this week about other

platforms, and I see some people in the audience that are very interested in fifth generation fighters. We've got in KC-46, if you think about it, a fifth generation tanker.

Chart, please.

It would be my pleasure then to give you an update on how the program is.

The plan is 179 aircraft. We're replacing about a third of, we're recapitalizing about a third of the aging KC-135 fleet. 400-plus of those currently still in operation, and another 59 KC-10s in the Air Force's tanker portfolio.

Just like KC-135 and KC-10, the KC-46 primary mission is air refueling, but it's also a very capable platform and we'll talk some more about this in a few charts in terms of cargo carrying capability, passenger carrying, and aeromedical evacuation capabilities.

It's been about 31 months since contract award. We're about 40 percent done with the development program. We'll talk about the status of that as we go a little bit further into the briefing, but right now based on this year's government schedule risk assessment, it looks like with greater than a 90 percent probability the Boeing team will deliver the 18 tankers by 2017 as laid out in the contract.

We'll have a couple of years of low rate initial production beginning in FY15, and proceeding into FY16. But in FY17 we'll ramp up to 15 tankers a year, and production will conclude out in the 2027 timeframe.

Note that in 2027 there's no discussion of those 179 tankers replacing all 400 of the KC-135 fleet. So we're going forward with KC-46 and those 179 aircraft, but the KC-135 and KC-10 will be with us for decades after 2027.

The aircraft will be built in the Boeing Everett facility, the same facility that produces 747s and 787s on the 767 line. For the development program, the four development or EMD aircraft will be modified at Boeing Field at our finishing center. For the production program the finishing center will actually move up to Everett, to Paine Field. So instead of aircraft having to depart the factory and fly 30 or so miles south down to Boeing Field to the finishing center, they'll just need to transit the ramp there at the Everett facility to go into their finishing center during the production phase.

The Boeing program office is currently at Harbor Point which is just several miles, maybe five miles from the Everett facility. Myself and my team, the program office for KC-46 is located at Wright-Patterson Air Force Base, about 160 people, although as I'll discuss in a little while we did plus up considerably here over the last several months with some temporary help to get us through a critical design review.

Lots and lots of stakeholders on the program that many of you are very familiar with in terms of what they bring to the fight. Air Mobility Command obviously our lead command and our biggest customer for the platform.

The Air Force Sustainment Center at Tinker Air Force Base in Oklahoma is our partner in terms of developing a long term sustainment strategy for the aircraft and we'll talk a little bit more about that as we go. Defense Contract Management Agency has been for the first 30-plus months of the development program our eyes and ears on site at Harbor Point in the Puget Sound area on the program. Obviously Air Education and Training Command as we begin to award contracts for training systems and get ready to man up and aircraft up, if you will, the flying training unit, key partners.

Is there anybody here today from the FAA? Okay. Let me just say that the Military Certification Office for the FAA, which is a very small group of people that sits in Wichita, has been extremely helpful in this program from the standpoint of the amended and supplemental type certifications and what are covered by those amended and supplemental type certifications for this commercial derivative aircraft. So as I make my rounds through the Pentagon and over on the Hill, I am very very cognizant of the fact of the FAA's role in this program and how they have really stretched the bounds of their envelope in terms of support to a DoD weapon system, and I appreciate that. So I always pass it on to other stakeholders.

The 412th Test Wing out at Edwards is our responsible test organization, but most of the testing will be conducted in the Puget Sound region out of Boeing Field and we're establishing capabilities for the program office, flight test and other stakeholder participation at Boeing Field as we speak.

Finally the operational testers at [AFOTEC] from Kirtland Air Force Base. We'll talk more about them later in that earlier this year we got our operational assessment number one on KC-46. So I'll be giving you just a little bit of background on how that went.

Chart, please.

Key milestones. As I mentioned earlier, we're about 40 percent done with the development program. We just clicked this box here at I believe the 21st of August on critical design review, so since preliminary design review in April of '12, the program's focus has been almost exclusively on getting through that critical design review. We'll talk a little bit about that later.

But some other milestones that I'd like to highlight for you all that we've been able to accomplish this year on the program, our post Milestone B Test and Evaluation Master Plan was signed by both the developmental test and the operational test communities from the Pentagon back in the January timeframe. The FAA, which I mentioned on the previous chart, the certification basis for our supplemental type cert was signed back in the March timeframe, clearing us through amended type cert which was signed actually in calendar year '12. Supplemental type cert signed in the February timeframe. And then as we completed CDR here in August we snapped the chalk line on the certification basis for the military type certification so we know all of the verification activities and who owns what in terms of certifying the platform to actually be air worthy.

The operational assessment was conducted from about the November of '12 through the March of '13 timeframe. The goals of that operational assessment which is essentially a paper review of our design, were to ensure that we were ready to go into critical design review and also to give us a heads up on those issues that may impact our IOT&E readiness for when we get into the 2016 timeframe.

This is the operational assessment number one that [AFOTEC] accomplished this past year. They have another one scheduled in the 2015 timeframe, just prior to IOT&E start in 2016 to kind of tell us where we're at.

Bottom line from the operational assessment that was published in May is that from an effectivity, suitability and mission accomplishment standpoint, KC-46 is on track. The report also detailed a number of recommendations and findings for the program office, the government team, and the Boeing team to take into account. The vast majority of those were not surprises. We already knew risks that we were working in the program and we had mitigations in place for. So we were frankly very pleased with the operational assessment as we went into CDR. Even publishing it in the May timeframe when we were trying to make a go/no go decision for critical design review in early June was beneficial. But I'll tell you, the real benefit of the operational assessment will come as we get ready to go into IOT&E in '16. Having those

things this early in the program, therefore knowing what the operational testers will be looking at out in the 2016 timeframe is money in the acquisition business.

For those of you who are not familiar with operational assessments being accomplished this early in the program, you're looking at a fan of that concept right now.

A couple of other things. We'll talk more about this. We had a lot of subsystem level major critical design reviews throughout the spring. We just highlighted one here, the support system CDR. In the May timeframe we also awarded the air crew training system contract to Flight Safety and we'll get a little bit of update on that as we go a little further into the briefing.

An important entrance criteria for any critical design review is making sure you have 90 percent of your drawings complete. That was accomplished by the Boeing team in the June timeframe, well in advance of when we needed to have those drawings for a July critical design review. Then as you'll see pictures of later this summer, we've loaded both the first two developmental aircraft into the factory there at Everett, so major assembly has started.

Going forward, in the June of '14 timeframe we'll do the first flight for our provision freighter, 767-2C. Power on for that, and departure from the factory there in Everett will be probably about the December, early January timeframe, later this year. Then KC-46, first flight will be in January '15.

The low rate initial production, as I talked about, all trying to get to this RAA date in August of '17, and then obviously full rate production out through '27.

Chart.

Aircraft configuration development, many of you are familiar with this, and this is one of the things that the FAA has been very helpful in helping us work through, but we're essentially taking a 767-200 extended range passenger aircraft and converting it into a tanker, and the way that we're doing that is taking the type certification for that 767-200-ER and we added dash-300F wings and we added dash-300F landing gear. We added a dash-400 auxiliary power unit. Then as the aircraft proceeds down the line in the plant there at Everett we're turning out a provision freighter which we refer to as the 767-2C. That's our baseline aircraft that will come out of the end of the factory. It will have the enhanced flight deck, it will have the cargo floor and door, it will have the body fuel tanks for the air refueling mission, lots of provisions for the tanker system, and I'll show

you that in just a few minutes in some pictures. But the bottom line is that in the past, commercial derivative aircraft that the government has procured, we've essentially procured a green aircraft, took it off the end of the line, flown it someplace, and essentially disassembled it, tore it apart to turn it into whatever we were trying to build at the end.

The KC-10 is a great example of a commercial derivative aircraft that came off the line as a green KC-10 and then the government modified it into an aerial refueler.

In the case of this tanker, many many of the provisions that we need such as holes in stringers required for wiring to go through; rivets; structural beefing up of certain parts of the fuselage, is actually being accomplished in the factory there at Everett. Then that aircraft as it comes out will be essentially the baseline for our amended type certification for the FAA.

As I mentioned earlier, this aircraft for the development portion of the program will fly to Boeing Field south of downtown Seattle where it will be turned into a KC-46; refueling systems, military avionics obviously, supplemental type certification and military certification installs at Boeing Field. Then as I also mentioned, our flight test program will be accomplished primarily out of Boeing Field.

Chart, please.

KPPs are the same as when the JROC previously approved them so we've made no modifications here. Obviously same sortie boom and drogue capable platform at the threshold range and offload capability equivalent to KC-135, the aircraft that it's intended to replace. Worldwide CNSATM compliance. Cargo, pax and aeromedical capability. Every one of these platforms will have receiver capability and will also be capable of operating in a chem/bio environment.

Net ready. The standard net ready KPP. And for a tanker, something new. Some very significant survivability aspects which I'll cover a little bit more in detail on the next chart. Then obviously multi-point air refueling when the wing aerial refueling pods are installed. Also a capability that is in dire straits, needed around the world every day to keep many of our probe equipped receiver aircraft airborne.

Chart, please.

Key features. I apologize, this chart does not look as bright as I had hoped, but from the business end of the aircraft looking forward, 1200 gallon per minute modernized fly-by-wire KC-10

boom. I'll tell you that the outer mold line of the boom is the same as the KC-10 but the guts are totally different.

It also will have, based on its length and ability to manipulate it from the fuselage of the aircraft, approximately three times the refueling envelope of the KC-135 boom. So it grants a little bit more flexibility for those boom operators who are operating.

Also, and this is for PowerPoint purposes only, the boom will not ever be deployed at the same time as the center line drogue system, but you can see the center line drogue system here with the 400 gallon per minute capability.

Then off the wings also 400 gallon per minute wing aerial refueling pods that provide for simultaneous refueling off of each wing.

I get this question very frequently so I'll just address it right here. Will there ever be an instance where you can refuel three probe-equipped aircraft at the same time? To that, I unequivocally tell you no. We're not planning to do that. If we're going to do multi-point refueling it will be off the wing tips and the center line drogue and boom will both be stowed during those kind of operations.

Going forward a little bit, the Pratt & Whitney engines, 62,000 pounds of thrust. Essentially a commercial engine. We'll talk a little bit on another chart about the capabilities inside the aircraft, above the fuel-carrying capability in terms of cargo and passenger, but standard 463-L pallets in use on the aircraft.

Multi-role capabilities which we've already talked, but there's also some capability for roll-on packages to do beyond line of sight capabilities.

Self-protection, as I mentioned earlier. Obviously EMP capabilities for the strategic mission, capable to operate in chem/bio environments, [LERCOM] is standard in the baseline aircraft with a radar warning receiver. Finally, cockpit armor which is new and unique to the tanker fleet.

As we drop back down here to the fuselage, a couple of things I'll point out. Number one is the aerial refueling operator station here, just behind the cockpit. The boom operators will in fact face to the rear, but they will be doing all of the aerial refueling remotely via a 3D camera system, state of the art long wave infrared cameras and something that's very cool, however I'll tell you that I'm on the bad boy list for every public affairs, wing level public affairs officer in our United States Air Force because, as many of you know, any time you do

civic leader tours or media tours relative to KC-135 and KC-10, you take them to the back of the aircraft and you put them in the prone position on the KC-135 or you put them in the boom operator chair on the KC-10 and they get to look out the window at that receiver aircraft. I apologize to all public affairs officers who are currently in the room, but all of your DV visits, your civic leaders, your press people are just going to have to huddle around the aerial refueling operators station at the front end of the aircraft.

As I mentioned also, all of the aircraft will have a refueling receptacle installed with 1200 gallons per minute, and then the digital cockpit, we are taking much of the glass from the 787 but I'll also address right here, right now, since I always get this question as well, we will not have the 787 battery on KC-46. Our electrical system and battery system are based on 767 so our battery is nickel cadmium not lithium ion and the electrical system is completely different from 787. Even though those 787 problems have been resolved.

So I had the Boeing guys looking very sternly on the front chairs here at me so I had to make that comment.

Next chart, please.

Dimensionally, KC-46 is about 15 to 20 percent larger than KC-135, and coincidentally about 15 to 20 percent dimensionally smaller than a KC-10. Yet, the capabilities relative to KC-135 in terms of cargo, pax and aero med are impressively larger. So from a cargo perspective, and again these are 463 and all standard cargo pallets, KC-46 can take about three times as many of those as KC-135s; about two times the passengers; and a lot more patients, more than double the number of patients on litters; and about the same in terms of ambulatory patients. So a great capability there.

Relative to the KC-10 which is, as I said, dimensionally larger, a few less cargo pallets, but a significant passenger and aeromedical capability improvements even over the KC-10.

Chart, please.

Critical design review. As I mentioned earlier, this has been our program focus for really the past year, since the preliminary design review was formally closed out. In essence we are validating the baseline; the government is validating the baseline design of the aircraft, ensuring that it embodies all of the contractual requirements, and approving, if you will, the program to go ahead and move into the fabrication, test and verification stage. Lots of integration work being accomplished

now by the Boeing team. But in essence, the critical design review gives you that authority or gives the vendor that authority to move in. And also, after critical design review, the government owns the design.

So we addressed this incrementally by beginning our critical design review activities in calendar year ’12 at the component level. So if you look at our calendar year ’12 component level critical design review preparation activity, all of that was run by the Boeing team with heavy participation from the United States government at the component level, at the subsystem level, and then eventually at the weapon system level just prior to the holidays last year when we accomplished the KC-46 airplane CDR here out at Harbor Point.

Again, all of this activity led by Boeing with heavy government participation.

At that point, though, going forward, roles reversed. That’s by design. At that point going forward as we approached all of the critical subsystems, the major subsystems, critical design review activity throughout the spring, throughout the rest of the winter and the spring, the government led the activity with heavy Boeing participation to ensure we got through this.

If you look at this lower level here you’ll see probably about 20 different events. Let me tell you, that is a vast understatement to the number of design review activities that we accomplished during that timeframe. I’d say it was more on the order of 100 events that government and Boeing engineers accomplished with their vendors to ensure that this baseline was ready to go and met all contractual requirements.

All of this culminated in a three day meeting in Harbor Point called Weapon System CDR the week of 8 July. And if you’ve seen some of the press and media coverage of that, we came out of that with just a handful of action items that remained to be worked. Please don’t misinterpret that handful of action items as well, I guess they really didn’t have a whole lot of work to do to get through this critical design review. Those hundreds of reviews or those hundred or so reviews to get us to that point probably generated on the order of 500 action items, 500 questions, 500 things that we needed to work out very closely with the Boeing folks.

So CDR closed officially the 21st of August and that’s about a month ahead of the contractual requirement.

This is also a very good place for me to mention that ugly word that all of us are sitting there thinking about, General

Thompson, how was your team able to accomplish all of this, get it done early in an environment of sequestration? I can see some of you mouthing this as I said it.

Two primary things. Number one, from a funding perspective as the number one modernization program in the United States Air Force, the people in the Department of Defense, the people in the Department of Air Force, the people over on the Hill that gave us the flexibilities that we needed took care of us. So if I'm standing up here talking to you about how sequestration impacted KC-135 and KC-10, I could spin a story for you that would not be very pleasant. But as the number one modernization program from a funding perspective and ensuring that I have the dollars to make my contract work and to get through critical design review in FY13, the Department of Defense took very very good care of me.

Now furlough. A lot of people have asked me if furlough had an impact? Yes. Furlough did impact us from an accomplishment of critical design review. We have in the KC-46 program about 160 people and probably 90 percent of our technical staff, 90 percent of our engineers in that group of 160 or so, we probably have 95 engineers. So 90 percent of those 95 engineers are government civilians. So how did we get through this?

Well, Colonel Sean Morris who's the KC-46 program director made some very shrewd decisions relative to what our technical team and what the program office would focus on. So things like annual recurring training, things like inspections, things like less than A-task kind of things relative to CDR were taken off the plate to free people up to concentrate exclusively on critical design review.

In addition to that Air Force Materiel Command and specifically the Air Force Life Cycle Management Center, the Engineering Directorate, the Contracting Directorate, the Program Management Directorate, all of those directorates helped me by sending me extra bodies relative to getting me through critical design review.

So whereas we had about 160 people in the program office, at the peak during all of this work right in here, at the peak we probably had close to 190 people in the program office, many of them temporarily assigned, letting things go back at their other jobs so that they could help the Air Force's number one modernization program get through critical design review. And it was successful.

Chart, please.

So, just some pictures. With critical design review behind us, there are three things that I have told the Boeing team and my own team that I absolutely have to concentrate here on over the next year to 18 months. First of all, we need to continue execution as it has been going. So as I mentioned before, 40 percent done with the development program, the Boeing team has met every contractual requirement to date. And most of those contractual requirements have been met early to the contractual date.

We need to continue that. We need to continue to ensure that the program is adequately funded and that we keep requirements absolutely stable for the program.

There have been no engineering change proposals on this program since inception. So, 31 months in and no ECPs. That stability of requirement enables us to get the schedule execution that we've had thus far. As we go from drawings to metal, a couple of things I'll point out. First of all, the Boeing folks made some substantial investments in integration laboratory work in the Puget Sound area. So there are currently five cells, three of which are fully up and operational that have to do with avionics. So cell-zero which handles our commercial avionics testing, integration testing; cell-one which handles our military avionics or our KC-46A unique avionics testing; and the ECAB or what we call cell-two which is a full-up human in the loop cockpit that is up and operational along with an aerial refueling operator station tethered to it are doing some great integration work. Then as we've moved further down into this year, we'll have a lighting lab up and operational and a wet fuels lab up and operational to do the key integration work required so that we don't save those things into the test program that would be more beneficial for us to run through integration now before we actually get into flight test.

Wing sections are in the factory at Everett. Boom assembly began last October. This is a boom nozzle. But if you actually walk into the boom assembly facility which is down closer to Boeing Field on the south side of Seattle, you'll see a whole bunch of things that look a lot like booms. So assembly is progressing well there.

ITAR compliance. The entire 767 line is now encased in an international traffic in arms regulated fencing system. So all of the mechanics working on the 767 line are in an ITAR compliant area.

Then Section 46 super panel, also in construction. This is the section of the aircraft, Section 46, behind the wing section and

three of our four body fuel tanks will be incorporated into the bottom part of that particular section.

Next chart.

I apologize for this being so hard to see, but as I mentioned early in commercial derivative aircraft programs of the past, we would buy a green aircraft and then take it someplace and mod it. This is in-line work on the aerial refueling receptacle panel in the factory in Everett. So as they're working on Section 41, which is the nose section of the aircraft, just behind the cockpit, at the crown, they're actually provisioning for aerial refueling receptacle equipment to go into the aircraft in line. This is a similar picture but from the inside of the fuselage. The structural work that they are doing to enable an ease of install at the finishing center is such that we've never seen before on a commercial derivative aircraft.

Here is that ITAR fence that I talked about in terms of main street. My understanding is that originally the mechanics that work on the 767 line were upset by the ITAR fence going in, but after they learned about the nature of why the ITAR fence had to go in and the government laid out the fat that they were going to buy 179 of these aircraft, plus they get to taunt the 747 and 787 mechanics who are on the other side of the fence, I think the whole team out there that works for Scott Campbell in the factory has bought into why it's important to have an ITAR fence and they're willing to live with it.

A second focus here in the post CDR environment after execution is the test program. Of Our aircraft, our four EMD aircraft to be produced here over the next 18 to 24 months, EMD number one and EMD number three will go directly into the flight test program in the provision freighter configuration. So, they will be 767-2Cs. They will begin working on the primarily FAA mandated amended and supplemental type certification work that they've got to do.

EMD number two and number four will come out of the factory at Everett as provision freighters, but then go immediately to the finishing center and will be converted into KC-46s. Those KC-46s, two and four, will work on combo supplemental type certification and government system verification, plus they will also begin the early phases of aerial refueling certification.

Eventually about six or eight months after they've been out clearing the envelope for the ATC and the STC, the 767-2Cs will come into the finishing center, be converted into KC-46s, and then all four aircraft in production configuration will support

IOT&E plus any remaining aerial refueling certifications for phase three.

As I mentioned earlier, the provision freighter first flight is next June and then the KC-46 first flight is in January ’15. A very aggressive schedule from the standpoint of test effectiveness and planned hours per month. We have confidence that we’re going to be able to do this, even though it’s aggressive, because of past Boeing commercial experience in doing this in their commercial fleets. So we’re absolutely relying on lessons learned from commercial aircraft to be able to execute the test program as we have.

The test once strategy involving all four aircraft and all of these different certification bases is simple. You’ve heard of integrated tests where we do developmental tests and operational tests and try and accomplish the same test points that support developmental test and operational test verification throughout the life of the program. This program is developmental test, operational test and FAA certification to the maximum extent possible at the same time.

So on a typical sortie out of Boeing field there will be Boeing people on the aircraft, there will be FAA people on the aircraft, there will be developmental testers and there will be operational testers. That is a basic tenet of the program and getting that strategy laid down with detailed test plans, memorandums of agreement and understanding between all of the parties is absolutely essential.

Chart, please.

Long term sustainment strategy. So in the development program we’re obviously relying on Boeing for our operational level depot and supply sustainment strategies. In the early phases, so in about the 2016 timeframe from year one to year five we have provisions in the contract for interim contract support. Our operations level maintenance will be conducted by organic maintainers at the flying training unit and the main operating bases. Depot and supply will be assisted by Boeing with transition to whatever avenue we decide to go.

Now you’re probably sitting there scratching your head going what do you mean, General Thompson? Whatever strategy we decide to go.

Long term aircraft. We know that operational level maintenance will be done organically by blue suit maintainers at the main operating bases. For the rest of the work, the depot and the supply chain, the terminology that we’re using is one hundred

percent organic management. What does that mean? That means that the KC-46 will not be a CLS for life aircraft similar to many other commercial derivative aircraft that are in the fleet. The government has purchased the appropriate data. The government will be the product support integrator for KC-46.

Now why do we say organic management? Well, the reason we say organic management is that we're going to make the decisions but those decisions don't necessarily mean that everything on the weapon system will go organic. With as many 767s that are flying out there commercially, it would be foolish of the United States government to say we're going to handle all that, we're going to set up a separate supply chain, we're going to do our own depot level operations for all of those components for which there is already capability and capacity in the private sector.

So in our long term sustainment strategy right now, we're conducting a sustainment feasibility demonstration where we're answering key questions like is it possible to maintain FAA certification for the ATC and STC portions of this aircraft? Can we leverage different kinds of parts pools? Instead of having a unique KC-46 parts pool, can part of our parts pool perhaps be common with industry? Is there a hybrid concept for parts pools? What are the time lines required to make decisions about the weapon system? If the 787 is going to be flying with landing gear components identical to what KC-46 has for the next 30 years, a priority for me should not be setting up depot level landing gear repair capabilities organic to the government. We should leverage what's available in industry.

Then obviously we have a number of cost benefit analyses that we have to accomplish relative to all of those questions to ensure that we make the best long term sustainment strategy and have it potted prior to our Milestone C in mid 2015.

Activities that we've got ongoing though, right now, independent of some of those longer term sustainment strategy goals, is we're in the process of provisioning, making sure we have the right technical data in the right format. Obviously we have some depot activation plans in terms of the all-up aircraft, not necessarily the components. We're working with Air Mobility Command on all of the base activation activities that you all have seen. Then obviously one part of the depot maintenance that we know will be Air Force organic is the plan for our initial C check in April of 2018 at Tinker Air Force Base in Oklahoma.

Chart please.

Our timeline, it's been a busy last 16 or 17 months. In addition to all the stuff I talked about before, as you can imagine, I

have a lot of stakeholders that are very interested in how the program is progressing so I have a quarterly opportunity to go see Mr. Kendall in OSD AT&L and give him a detailed status of the program. In fact I will be doing that this week while I am in town.

In addition to that, all four of the defense committees over on the Hill have asked me to come over on a quarterly basis and give them a similar update which I do and in fact I will do the SASC later this week and the other three defense committees sometime towards the end of next week on a separate trip.

We've covered all these other things here in the previous charts. As we go forward, though, for the next 18 months, obviously we have two more aircraft to produce that are not in the factory currently so we will in October get EMD number three into the line there at Everett. We have an integrated baseline review, an IBR, for the air crew training system. Integration labs. The fuels lab and the lighting lab will be up and fully operational. Our roll out and power on, as I mentioned previously in the December timeframe for EMD number one. And then a test readiness review in the June timeframe, next year, followed by our provision freighter first flight, some boom assembly completions, and then probably the big day is first flight for an actual KC-46 tanker in the January of '15 timeframe.

Chart, please.

So in summary, Air Force's number one modernization program. I am very pleased with the progress, as the PEO I'm very pleased with the progress of the program. At this point, I've used this phrase before but I'll use it again, I think we're in a very good place right now. CDR successfully completed, the design is ready to get into integration, fabrication and test. Cost, schedule and technical performance from a government standpoint are on track. Our first flight for the provision freighter is in June. I mentioned, and I'll mention it again, and one thing I'll stomp my foot on very frequently for this program is requirements and funding stability are absolutely key. So if you ask me right now how does sequestration look in FY14, I would tell you there's a considerable amount of uncertainty relative to sequestration as I'm sure you've heard other speakers say. It all depends on the implementation guidance. As the number one modernization program, though, I'm sure that the Secretary and the Chief and the rest of Air Force leadership will do what they can to protect this very critical program as we go forward.

I also mentioned no ACPs, no engineering changes to date. And our way forward is to continue with the good execution, fully

pilot the test program, the detailed test one strategy, and develop the long term sustainment strategy.

General Welsh in budget hearings earlier this year said that the tanker fleet puts global vigilance, global reach and global power, and as I mentioned at the very beginning of my presentation, I absolutely agree with that. There are hundreds of tanker crews and thousands of tanker maintainers around the world proving that day in and day out with the United States Air Force, allied and sister service aircraft. All making sure that those aircraft get the gas that they need wherever they're at all around the world.

With that I would be happy to take a few questions.

Question: General, thanks for taking some time.

You mentioned that the cost and schedule were on track. I just wanted to get your response to a GAO report from earlier this year that said the initial development contract is going to exceed the ceiling by almost $5 billion and that the reserve fund was almost, the rate of spending on the reserve fund was high and he said that might be a problem. Can you just respond to that?

Maj. Gen. Thompson: Let's start with the GAO report from earlier this year. Many of us in the audience here, and me in particular up on stage, have been subjected to numerous GAO reports for acquisition programs over our careers. It's an important oversight responsibility that our government gives to the GAO and we have an annual report requirement on KC-46 for the GAO to come see us.

I believe the title of the report this year was something like Generally Stable, referring to the whole program.

For those of us who have had GAO reports accomplished before on our programs, although generally stable is not something you would tell your spouse in terms of the status of your marriage, generally stable is, I think, a very positive way to refer to an acquisition program by the GAO.

Currently, relative to, and really there were two questions. One was the estimated completion for the development program. I color the development program cost/risk for the government since our risk I bounded at 4.83 for the fixed price incentive firm portions of the contract. I call that green because ay overrun above that 4.83 billion dollar ceiling price in the contract is borne by the Boeing Company.

As we go through, the Boeing Company's current EAC is about $5.1 billion. The government program office's EAC is about $5.6 billion. I would characterize the differences between those two numbers as assumptions about what's going to happen for the next 60 percent of the program. How many problems will we have in test? What are the risks that are out there? What is our past experience with acquisition programs?

I am absolutely hopeful that the Boeing folks will prove the government EAC wrong, but I have to report what I see from assumptions and current status of the program in terms of execution. So that's why I think that government and Boeing EACs are fundamentally different.

Also you referred to in late calendar year '12 we had some management reserve comments in the media and in some of our acquisition reporting in that the government was concerned that Boeing was going through designated management reserve in the program more quickly than anticipated. In the late December/January timeframe, based on a considerable amount of internal work, Boeing was able to restore about $70 million from the baseline program back into the management reserve accounts. So I'm very pleased with that.

In addition, throughout this calendar year their burn rate for management reserve has only been about a third of what it was in calendar year '12.

So whereas management reserve is something that I will continually watch as the PEO and the government will continue to watch, it's not nearly the concern it was for us in the '12 timeframe.

Question: With all the success of the KC-46 program to date, legacy tankers will be with us for many decades to come. Twoquestions. There have been press reports this week of the possible retirement of the KC-10A and 135. Can you tell us anything about that? Secondly, what is being done to keep legacy tankers, especially the 135, operationally viable for the future?

Maj. Gen. Thompson: First of all, no, I can't tell you anything about any plans that anybody may or may not have about potential retirements in the 135 or the KC-10 fleet.

Second of all, there is throughout their entire life and going into the future very robust modernization programs for both of the legacy tankers -- KC-10 and KC-135. Currently both of them are going through CNSATM upgrades and a number of other smaller modernization efforts. Things that we call low cost mods to ensure that those weapon systems are viable going into the

future, not just right now. We are not taking dollars out of those programs in order to fund the KC-46, if that's what your question was.

Question: You talked about the integrated production process wherein aircraft are actually being built on the line rather than being built, sent out, disassembled and built again. Given the life extensions we've seen for the KC-135 fleet, do you feel that this production integration might obviate the need for at least some of that, depending upon usage and life cycle in the future for the KC-46? In other words, can we get away with a couple of less life extensions for this fleet that we have with the KC-135 because of that process?

Maj. Gen. Thompson: I think the primary focus behind producing a provisioned freighter up front as opposed to just a green 767 that' not provisioned to accept aerial refueling, is primarily in, the advantage is primarily in the manufacturing build process. The costs associated with that, the risks associated with tearing an aircraft apart after you buy a green aircraft.

In terms of life of the program, though, comparing this sort of new philosophy to an older philosophy of buy the green aircraft and tear it apart, I don't think that the life necessarily of the commercial derivative aircraft is less because it went through that other process previously.

In other words, I like what I see in terms of when we get the aircraft to Boeing Field, these first four EMD aircraft, and we've already done all the fit checks, we already have them provisioned to start to accept aerial refueling, I love that concept from a risk perspective of okay, we're going to be able to stay on schedule here because the aerial refueling equipment should go in like butter. As opposed to in previous ones where there was so much more detailed integration work required at the integration center, or at the finishing center.

Thank you all very much.

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