

AA. Ep 201 – Shoot to Kill: The Day America Launched an ASAT – Transcript

Doug Birkey: [00:00:00] Welcome to the Aerospace Advantage podcast, brought to you by PenFed. I'm Doug Birkey, the Executive Director at the Mitchell Institute. Here on the Aerospace Advantage, we speak with leaders in the DoD, industry, and other subject matter experts to explore the intersection of strategy, operational concepts, technology, and policy when it comes to air and space power.

Now, today, we're going to take a trip back to the height of the Cold War to talk about a really important mission. An anti-satellite test, ASAT for short. The Air Force executed on Friday, September 13th, 1985 as a form of deterrence against the Soviet Union. Now fast forward nearly four decades later, and we're really in a back to the future type moment.

I mean, pure competition is alive and well again, given the threats posed by China and Russia. And space is critically important, and as we often discuss, it's a contested domain. And that means the lessons learned from the 1985 ASAT test are more relevant than ever. And today's great power competition has uncanny [00:01:00] similarities to the context of the Cold War.

And the U. S. pursuit of cross domain effects builds on the lessons learned from previous failures and successes. So, here's some quick background. The program in question was designed to demonstrate how an F 15, equipped with a specially designed missile, could destroy a satellite. These tests required detailed planning, rehearsal, and coordination to seamlessly synchronize air and space activities.

You know, it still stands as a singular example of an air to space engagement. Conducted during the Reagan build up, the F 15 ASAT test was as much about messaging as it was about technology. But this wasn't just a science experiment. It was driven by a really very real threat of nuclear war between the United States and the Soviet Union.

Two major global powers with conflicting ideologies. Freedom and democracy on one side, and state controlled communism on the other. Both recognizing the critical role space capabilities could play in a future conflict. Sound familiar to anybody? So, the F 15 ASAT [00:02:00] program, the context for which it was developed, and the steps dedicated air and space professionals took to make it a success, are as relevant today as they were in 1985.

Now, two visionary Air Force leaders are joining us today to discuss a historic event and program. First, we've got Major General Doug Aggie Pearson, the pilot who took the shot and directed the F 15 anti satellite combined test force, and Colonel Jack Anthony, the operations officer at Cheyenne Mountain, tracking it all.

Aggie, welcome.

Maj General Doug "Aggie" Pearson, USAF (Ret.): Well, thanks for having us today. This is a great opportunity to focus on American military capabilities, especially those in the past and in the present and in the future. So, thanks for having us.

Doug Birkey: Now, we're so excited about it. And Jack, great to have you with us as well.

Colonel Jack Anthony, USAF (Ret.): It's great to be here. Thanks.

Doug Birkey: We've also got our two Mitchell Institute senior fellows for space power, Charles Galbreath and Jen "Boots" Reeves with us. Charles Boots, always great to have you here.

Charles Galbreath: Yeah, great. Great to be back, Doug. And thanks to Jack [00:03:00] and General Pearson for joining us.

Jen "Boots" Reeves: I am so excited to be here. I cannot wait to hear from these two legends. Thanks so much.

Doug Birkey: Now, and, and I really joined the sentiment about legend. I mean, I remember reading about this when I went through the Air Force Museum as a kid. I mean, this stuff is, is really incredible. So gentlemen, it's an honor to have you with us today. So just kick this off, you know, Aggie and Jack, I've tried to paint a little bit of picture here. The Cold War context in the intro about why this occurred and all that, but can you expand on the pressures on the military during the 1970s and 80s and kind of how this came about?

Maj General Doug "Aggie" Pearson, USAF (Ret.): Well, yeah, absolutely. Uh, it was certainly an exciting time. I had the privilege of being in Europe in the 70s with the F 15 and the first squadron of F 15s to convert.

Prior to that, I'd sat nuclear alert, with F 4s. So, that was kind of my mental background, if you will, because there were days when I certainly thought we

were [00:04:00] going to war with the Soviet Union in the 70s. They were putting a lot of pressure on Europe all over the place, much like today, although it's not the Soviet Union today, it's others, including the Russians.

But in the 80s, by the time I had left Europe and gone through the weapon school and ended up at Edwards as a test, test pilot, the 80s started to be pretty busy and the Soviet bear was really growling in many places around the world. And was projecting a 12 to 15 ft bear, you know, we're vicious. We're gonna eat you alive and you better back off. And it turns out that was really just kind of the last flickering of a failing Soviet Union. The American build up and power from Star Wars in the Reagan's days and others efforts were really kind of spending the Soviet Union into the ground. But we didn't know that at the [00:05:00] time.

And desperate people like maybe Putin today do desperate things. They sometimes do things they might regret. So, in the 80s, we really thought something might happen. And I believe that with the advent of space access becoming more and more common, the Soviet Union clearly saw that as the high ground and they were developing all sorts of capabilities, not only just weapons, but surveillance and communications and other ways to exploit the space environment. Truly the high ground.

I think we recognized that. We needed a way to show them that they could not have the high ground for free. So, there were a number of programs to watch what they were doing and develop capabilities to take them out if necessary. So, there were several [00:06:00] programs prior to our airplane base program, our center program, and even though the Berlin Wall still stood and was a symbol of Soviet dominance, if you will, over certain places. We moved forward and showed them that, uh, this was not a good thing to do.

Colonel Jack Anthony, USAF (Ret.): Certainly, hang on to what General Pearson stated there based on his experience. From where I was in Cheyenne Mountain with the U. S. Space Command, we certainly kept an eye on their overhead systems that could keep an eye on our soldiers and sailors, airmen, and Marines.

So, that gave us concern that we had to keep an eye on them. And also, we were really finally sharpened to pay attention to the co orbital ASAT that they had been testing. They had quieted down for a while, but they had a lot of tests under their belt. [00:07:00] So, I too saw an angry bear with, with some capability that, we needed to be careful with.

Charles Galbreath: Yeah, Jack and General Pearson, thanks for, for that perspective. And, you know, General Pearson, while you commented on the similarities between, the Soviet Union in the 80s and what we're seeing from Russia today, we're also seeing that of course, from China and our shift to great power competition and their expanding use of space and really why the Space Force was created to help counter that growing utilization of space by potential adversaries.

And so I hope the audience really honed in on that key point of there are a lot going on and desperate leaders may take desperate actions. That's true in the 80s. It's true today. And we've got to look not just at Russia as the former Soviet Union, but also China and other potential adversaries around the globe.

Really appreciate that historic perspective.

Doug Birkey: Yeah, and I think the important thing everybody's talking about too, and it applies so much today, is this whole notion of deterrence. And [00:08:00] we can say, looking back, that yeah, Soviet Union might have been, you know, trailing off, but nobody knew at the time. And we had to play to win, and playing to win meant keeping the peace through strength.

And it's just so much where we're at right now. And so, really appreciate these thoughts. You know, if we take it down a level, you don't just wake up one day and say, Hey, I feel like shooting down a satellite. What's up? You know, when you look at the operational elements and program development and all, how did this come to be?

And why was it so important? You know, this actual exercise, we set the broader context, but when you look at this, I mean, it's very symbolic.

Maj General Doug "Aggie" Pearson, USAF (Ret.): Yeah, that's a good area to talk about. And actually I've woken up many days thinking I'd like to go take something out to include some satellites, but certainly a preplanned event.

It was really important to do this because you need, you can't just say, you know, I call your bet and I raise you, you know, 50. You have to demonstrate it. We need [00:09:00] it to make the point. And as I mentioned earlier, the sense of urgency was there. And in the Soviet Union, there was certainly a sense of urgency, and they had developed a capability of launching relatively small, simple satellites for surveillance purposes that could, film and send it back to Earth as required. On a very routine, high cadence basis.

What that meant for us was we had the potential for losing our ability to surprise, as we attempted to project power around the world. Primarily from sea. A carrier battle group can get lost in the Pacific and intentionally, from our adversaries. And can show up on an enemy's shoreline, miles off shore with aircraft, [00:10:00] capable of doing a lot of damage.

So, the Soviets couldn't keep up with those battleships and the carriers very easily. And when it went from the surface, but from space, you can do that. So, these early reconnaissance satellites they were putting up, they keep up with a carrier battle group. Uh, you know, in 24 hours, a carrier battle group can only move so much. A few 100 miles maybe. And a satellite can certainly surveil that amount of the ocean. So, that was a big deal, a really big deal that changed the balance of power almost and that we could no longer surprise anybody. And it also could help them to target submarines and others and disrupt their carrier battle group.

So, that was a big deal and one of many elements that led to this heated desire to be able to take out these satellites almost as fast as they could [00:11:00] put them up. So, the focus was on an air launch system, and the search was on, and of course the F 15 was a very capable fighter. It had most of the elements needed, fairly long range, could be launched from any military base, etc.

And it could carry a weapon that could be launched into space. So, the centerline tank on the F 15 was about, carried about 3, 000 pounds of fuel. The ASAT missile ended up being about 3,000 pounds and roughly approximate the shape of a centerline tank. So, physically it was pretty good. And that led us to the ability to fly several hundreds of miles to get from a launch point. To get under our satellite track that we were interested in. We could do that.

So, the effort was on to develop, the [00:12:00] integration, the missile itself was one whole effort, which we worked very diligently on. Integrated existing parts to try to expedite the rocket motor was a SRAM rocket motor that had been used on another cruise missile, like vehicles, the upper stage of them all tier two.

And then the real heart of the system, the brains, if you will, and the real magic was what we call the miniature vehicle. And that took a lot of development and the integration of the missile and the integration of the missile to the airplane, were all challenges that we had been up to, in other efforts.

But one of the things that was uniquely different here and a big deal was integrating, an airplane into the space world. Where it was an entirely

[00:13:00] different culture. It was an entirely different set of solutions for problems and approach to solutions. And we had to work with both of those. So, no one had developed a weapon that would dynamically target, a moving very high velocity object in space, from an airplane.

So, those were all things that, there were many, many firsts required to solve on this, this program. So, that was kind of the urgency and that was the setup for the program. There, there's, many, many, you could speak for hours on the different elements of solving all those.

Doug Birkey: That's incredible.

I mean, you know, it's one of these things, you can understand it in theory, but you actually did it. I mean, that is just, it's mind blowing to me, Jack. I mean, how do you see this form up from your perspective?

Colonel Jack Anthony, USAF (Ret.): [00:14:00] Well, I tell you what, it never gets old listening to General Pearson, uh, to talk through this.

So, I, he's a friend and mentor and I'm so, so fortunate to know him and we get to talk about this program. The astrodynamics of the weapons system, the F 15 ASAT. We, uh, we astro nerds in the mountain, did a lot of, a lot of work to calculate the orbits and make sure that the solution was pretty tight.

We also worried about space debris. In fact, we had a close relationship with Don Kessler of the Kessler Syndrome and Nick Johnson, another NASA person, and we were very careful about when this happens, where does debris go and we don't set up a bad situation. But, our end of the deal was to solve the astrodynamics [00:15:00] and enable our prototype mission operations center to get a good plan to General Pearson and his people at Edwards.

So, they could do the test mission and that's what we concentrated on. And we were pretty proud space folks to be so well connected to an air test program.

Charles Galbreath: That's awesome. I'd like to dive in a little bit more on a couple of those aspects of precision and debris. I mean, both the United States and Soviet Union had demonstrated using nuclear weapons and high altitude nuclear detonations as an ASAT capability.

We saw the Soviet Union developing additional anti-satellite capabilities in the 1970s. With extensive testing of their kinetic kill sort of pellets that were co-orbital. Uh, and now with the F 15, you highlighted the fact that you had to be

very precise and that you were trying to, you know, minimize some debris by not having a warhead on the end of the missile as well.

So, can you talk a little bit [00:16:00] more about how critical the precision and the debris generating factors were in your overall planning?

Maj General Doug "Aggie" Pearson, USAF (Ret.): Sure. On the precision end, the requirement to hit the kill drove a lot of things favorable. No requirement for fusing, no requirement for a warhead and a lot of simplicity, in that regard. However, with regards to debris, there was no consideration for minimizing debris. We didn't try to shoot it in the leg, if you will, or wound it. The objective was to hit it in the center of mass and destroy the target. And that was a downside. Nobody wants debris in space.

And we had a lot of people on our side of the fence that did not want to see us develop this particular kind of a weapon because it did pollute, you know, the, [00:17:00] the orbital, ring that, that the satellite had been in. The debris, and in this case, that was part of the test was to see what the debris field would look like.

And how, what could you track? At that, Jack and comment on this even better. But at the time we had the ability to certainly track some small objects in space. But today, that's even better, of course. And they did. Part of the program was to track the debris, and we did have the amount, we've got that available in terms of what was observed at the time and how fast it would degrade and re-enter and burn up. And again, that was in terms of years, not days, hours or minutes. It's not like an airplane that you blow up at 40,000 ft and it falls to the ground. This stuff is all outside the atmosphere and the stuff that, [00:18:00] because of the energy of the at the impact, some of it came down into lower orbits and may have degraded sooner.

Some of it went out into higher orbits and stayed in orbit for a while. That was an issue. And because of that, we had a lot of organizations that did not want to see us do these kind of tests. And in part, you have to agree, but also it was necessary to do this kind of testing to make sure we could hit a target at these kind of velocities with the weapons and the information that we had.

But you don't want to do that much. And you certainly don't want to use a nuclear weapon because that contaminates an even bigger area. And you don't want to use other explosive devices.

Doug Birkey: Yeah, that's incredible. You know, we talked a lot about what was going on domestically, but gentlemen, could you talk about the international coordination that was conducted prior to this test [00:19:00] event?

I'm imagining that there was a lot of communication.

Maj General Doug "Aggie" Pearson, USAF (Ret.): Well, maybe not so much. If you have to go back and the environment at that time was such, and there were only a couple of players in the space world at the moment. And we were trying to make a point and there were some, I wouldn't call it really coordination.

There was some level of information sharing about some of these programs. But this was, this was kind of black world stuff at the time. And I was not aware, in fact, I had some pretty serious restrictions on who could access our working area at Edwards. We had foreign entities at Edwards and they were not allowed anywhere close, so.

There was no coordination down at that level. At the political level there was [00:20:00] probably some. The most interesting coordination was just enough information out there to make sure the Soviets knew what we were maybe trying to gonna do, you know? And there's this kabuki dance that goes on, with your enemies to this day about our capabilities. You know, we, the Russian bear said I'm 15 feet tall and I'll rip you apart. And you have to prove it otherwise. So, we were trying to project some pretty potent power and there were probably some accidental leaks that might've been interesting to the it's, I do know there were certain surveillance fishing boats out in the Pacific when I took the shot.

And I'm glad they were there because they got to observe this was real and that sort of stuff. So, that was an interesting time in [00:21:00] American history, I think.

Doug Birkey: I'll say the least. That's incredible.

So, you know, General Pearson, you're a command pilot. You've got over 4, 000 hours flying and more than 50 aircraft. You flew Vietnam, 364 combat hours, but I'm guessing this particular flight had to be very, very special and unique.

Can you walk us through the events leading up to that shot and really kind of what the flight profile was like for that engagement?

Maj General Doug "Aggie" Pearson, USAF (Ret.): Well, it certainly was, and the build-up to it was really remarkable. In the test world, as a test pilot, you often do things that have not been done before.

Otherwise, we wouldn't have a job. So, doing things for the first time is in our DNA, if you will. And it's always an interesting challenge. But in addition to the flight profile and what we did with the [00:22:00] integration of the airplane and a weapon, maybe the bigger first challenge was integrating the two cultures of the space world at the time.

Which was primarily launching satellites at the time and tracking satellites and communicating with things in space. All those things were just becoming routine, if you will. And integrating all that with the culture of aviation, which had been around for, you know, 80 years or so, and very well established king of the mountain, all that kind of stuff.

So, I think one of the most important things we did was connecting the dots between the aviation world and the space world in a war fighting mentality and approach. [00:23:00] So, we had everything from communications issues to access. There were, there were really highly classified things in the space world that said, you guys just don't need to know.

And we may have had a few things in the aviation world that we said, well, yeah, you guys don't need to know this either. But in fact, we do. We all need to know. So, we did a few things. I was privileged to go down to Los Angeles and fortunately for me, most of the people at Edward didn't care about the space world.

They were too busy making F 16 fly and F 15 fly and developing weapons, et cetera, et cetera. So, I'd go down there rather routinely and sit in on briefings. And we were privileged to have a wonderful gentleman down there, Forrest McCartney, as a Lieutenant General in charge of the command down there.

He was from Mississippi, and I was from Louisiana. We got along [00:24:00] from the get go and he was very accommodating. He included me and anything I wanted to be included in. And I found out he had not flown in a in an airplane, Air Force military fighter like airplane. So, I invited him up to Edwards to participate in one of our missions and see what all it takes to do that.

And he accepted it. And that worked out great. He came up, went through all the briefings and got to see all the stuff that has to happen before we can go fly

and launch. And it was eye-opening to him. And he took that back and our lives at the, at the execution level, just kept getting better and better.

Similarly with the Cheyenne mountain folks, we, they didn't have a lot to do with our kind of the fighter, warfighting kinds of airplane. So, we went up there, I went up there and we spent time with them and invited them down. [00:25:00] So, that was, I think one of the biggest contributions early in the program was getting these communities to understand each other, and appreciate each other, and communicate with each other.

And we got a lot done that way. I think we developed some algorithms and simulators and then put an airplane and demonstrated how to make up or adjust your timing. Because time was probably the most single important parameter for the launch. Because we had a high velocity target and we predicted where it was going to be through the Cheyenne Mountain targeting data.

We had a launch, we had a missile that had to be launched at a particular place, that had to get to a football like volume of space, which was fairly small, about 1500 ft in diameter, say 3000 miles along, [00:26:00] 3000 ft along the long axis. So, a fairly small spot in space where this miniature vehicle had to arrive at a particular time.

So, you have all these different variables, and you have a couple of fixed points. And if you have the satellite at a particular place, if you have the MV, the miniature vehicle at a particular place, then life is good and it will acquire, and guide, and hit the satellite. So, the Kabuki dance is all about figuring out how do you get that miniature vehicle in that very small piece of space outside the atmosphere.

So, show day was all about that and we knew we could predict the time of flight of the missile. We could predict where it needed to be, you know, those minutes earlier. And [00:27:00] that was my job was to get the F 15 at a particular spot over the Pacific. At a particular altitude, at a particular heading, and attitude, velocity, et cetera.

All those things had to come together at T equals zero. We started to count down about 24 hours ahead of that. And we had a very, very, very detailed, I mean, line by line by line, what had to happen to what minute. All the way up to that launch point and of T equals zero. I flew this profile hundreds of times and simulators or in the airplane over Edwards.

So, I was very comfortable with it. I had programmed in certain hole points. I had hand selected the chase pilot and the photographer that was going to go with me through the launch because this was a live (inaudible)d that had the potential to [00:28:00] explode. I minimized the airplanes. I did not, only took one airplane with me after we left the tanker.

So, if something happened it would be minimum. The launch point was about 200 miles out with Pacific. Fairly remote area. We checked all shipping and all that kind of stuff as part of the normal effort at a clear zone except for the people that we wanted out there. We had some observation from the surface ourselves and then we're well aware that the Soviets had some out there as well.

Yes, it was a very special day, and it was a very special several months building up to this and getting everything done. I don't think anybody had ever had a clean tent at Edwards, where you had to clean a vehicle, an object, a miniature vehicle that was going to go into space because [00:29:00] debris in space, doesn't, it doesn't blow away, you know, dust on your windscreen and an airplane goes away.

Dust on the wind, on the sensor on a miniature vehicle would not go away. There's no wind, there's no resistance. That sort of stuff. So, we had, we had a clean tent at Edwards that was certified down to 20 microns, I believe. Went in with a white suit, et cetera, and integrated, put all this stuff together.

If you've ever been to the desert, you know, there's debris and the wind and then the air all the time. And that was a challenge, keeping this thing clean. And we did. We did what we had to do. Very special mission.

Doug Birkey: That's incredible. So, you know, you mentioned President Reagan, but who is the ultimate decision authority authorizing weapons release here?

Maj General Doug "Aggie" Pearson, USAF (Ret.): Yeah, the decision authority rested with the President of the United States, personally, because the laws passed by Congress [00:30:00] required him to certify the test in space was absolutely necessary for national security reasons. So, President Reagan had to certify that. And years later, quite a few years later, I had a congressman tell me he was in the briefing and he was having the discussion with the President explaining what all this was about.

And of course, they had all the details of the mission. And when President Reagan was looking over that, he said this pilot, his call sign is Aggie. Is that

right? And, uh, and the Congressman said, yes, sir. And, uh, Reagan looked up at him and he's an Aggie. Should I be worried?

Doug Birkey: And I got to ask here, I mean, how long did it take to get confirmation of the kill and how they determine that? Cause it'll pins and needles. You might've owed some people, some beers here. If you missed, I'm just saying.

Maj General Doug "Aggie" Pearson, USAF (Ret.): Well, you're right. And [00:31:00] obviously I had a vested interest in knowing if we had hit it or if we had missed it.

I didn't have any sensors that could reach out that far. So, I was in the dark, so to speak. Once the, once I launched the missile at about 35,000 feet, it came off perfectly and the motor ignited and I could see all of that and I could watch it. The smoke trail till it went out of the atmosphere basically. Then I couldn't tell anything more. The time of flight was just over five minutes until impact. I knew that, you know, from a planning factor. So, I knew exactly when the impact should have occurred. So, we, to save efforts and in that day and age, the F 15 did not have a secure radio.

So, every radio transmission could have been picked up and listened to by anybody. So, the plan [00:32:00] was when I got back to Edwards on the ground, they would tell me the classified, highly classified results, if we hit it or if we missed it. And if we missed it, we had a variety of stories that were going to be released and said, you know, we'd plan to miss it within a few inches or we had planned to miss it, you know, by something.

Anyway, it's a pretty good story and we didn't want to create debris in space, and we were respectful, etc. We had some great stories, and it turns out I had picked the controller that was over at Vandenberg, and I asked Scott to go over there and be on the microphone and I had talked to him the day prior and I said, Scott, before you go over to Vandenberg, I want to work out a little code here. And you're going to know in the classified control room, you're [00:33:00] going to know if we hit it.

So, I'm going to wait five minutes and certain seconds, and I'm going to say, Vandy control, this is Aggie 0 1, I'm going to level at some altitude, 35,000 feet or something. And if we hit it you're going to come back to me and you're going to say that's a good altitude, or if we missed it, you're going to say Aggie 0 1, we recommend you go to 25,000 something other than what I had said. And that would I would understand. And, you know, I'd start crying or whatever. And

five minutes and so many seconds, I make the call Vandy, I'm leveling at 35,000 feet. And when Scott keyed the microphone, all I could hear was this enormous yelling and screaming and stomping in the background.

He never had to say a word. I knew [00:34:00] we had hit it. And it was a great moment.

Jen "Boots" Reeves: Okay. So, then I have a quick follow up to that as well. I'd like to hear more about any debates or the protests over weaponizing space.

Maj General Doug "Aggie" Pearson, USAF (Ret.): Actually, before this test, there were some language, some laws passed that said you cannot test in space unless, the President of the United States, personally authorizes and certifies that it's in the national defense of the United States. National security.

So, the president was required to notify Congress that a specific test. This test was necessary in the name of national security. So, President Reagan did, in fact, certify to Congress and in the law, it said Congress had to have 15 days, no advance notice before the test. [00:35:00] So, his original certification was, in his mind, 15 days prior to the 4th of September when we had said we were going to be ready to go.

And it turned out he did not actually give them 15 days' notice. He gave them notice on the 15th day. So a very minor, in my opinion, technical matter is what caused the delay. Those who were against us went to a federal judge and said, the President is not in compliance with the law. He notified us and we have not had 15 days to consider this.

This is the 15th day. And the day had not expired. So, for a matter of hours, they were successful in getting an injunction and caused us to stand down the test at the 11th hour. It was literally the morning of the fourth. I'd already had the missile loaded. I'd invited up a number of VIPs to witness the [00:36:00] test and we were, we were paired up and ready to go.

Jack's team from Cheyenne Mountain had delivered all the data we needed. It was loaded nearby. We're ready to go. And we were actually at breakfast about two hours, three hours before the launch. And we got the call from the secretary. Joe McCartney, a three star had Gotten called away. I thought it was just the Secretary in his office calling and when he came back to the table, he said, the Secretary just told us to stand down.

And that's when I realized it was the Secretary of the Air Force. So, we stood down and did the (inaudible), and then we had that mission. And we were ready on the 13th of September, and it went about as moving, rolled the complexity and rolled the moving parts. Everything came together very nicely on that day. Oh, yeah, there was a there was [00:37:00] there was a real fireball.

Um, you know, the adversaries for testing in space came up loud and clear and talked about the debris. NASA was concerned about that. We were all concerned about the debris, and it was not something that we wanted to do lightly, but it was certainly something we needed to do. So yeah, there was.

At my level, at that time, we were just focused on the next test. We were thinking that, you know, this was this is a great test. It was a very difficult test. The profile was challenging. The intercept angles were challenging and proved a lot of things. But we had a few more things we wanted to prove. So, we wanted to do a very quick turn to the next launch event and intercept another target.

However, that was not meant to be. Those adversaries very quickly got to the Congressional leadership and others, and they [00:38:00] said, there's the "thou shalt not." So, we did not get to do another intercept. We did. I did watch two more missiles, to points in space to demonstrate other things and improvements.

But there was no target involved in those. There actually was a whole other program to develop targets for these that would have been much cleaner. They were actually a balloon like device that would not create a lot of debris even if you hit it. But the plan for those was generally not to hit it.

But, we probably would have in hindsight. But yes, there was a lot of debate, a lot of discussion post mission. I think, I know, the Air Force was very satisfied with the results. I believe [00:39:00] there was personally, I believe, there were some very high level horse trading took place in the months or so afterwards when the President made the decision and agreed that we would we did not need to test anymore with targets.

So, the program continued. At the time there was a, we had an agreement between the war fighting and national command authority that if the need arose to go after a real Soviet satellite, we would do that. There was a, several of us identified that would have taken off our test hats and become operational commanders and we would have executed the mission as directed by the President.

I won't say any more about that. At the time we did spend a lot of effort on that and we were ready to go with that. We had some [00:40:00] resources that we could use and we would have treated it, from an execution point, very much like a test mission, but it would have been an operational wartime mission and we would have done that.

We retained that capability for some time and the next two launches were, the next one was about a, well, both of them I think were within about the next year. And the last one I did was a night mission. We wanted to demonstrate we could do this 24/7. So, on midnight, I went out to essentially the same spot over the Pacific.

And I don't know if you've ever been out over the Pacific on a moonless night, 200 miles offshore. I can tell you it is really dark. And it was spectacular night. All the stars were just absolutely beautiful, but it was really dark. And when I do mission planning, I like to mentally go [00:41:00] through everything and say, you know, this happens, this happens, that happens, this, that, that, and then you think about exceptions and all that.

You just try to think of everything that happens. I thought about everything, but one thing. And when you fly this profile, you accelerate out to about Mach 1.3. And at a certain point, you pull up into a 60 degree climb, full afterburner, and you decelerate during the climb from about 1.3 to about 0.96 Mach at the launch point.

At the launch point, when I released the missile, it came off exactly as expected. And about a second or so after that, that big rocket motor launches, ignites. And I refer to it as an artificial sunrise. And if you're going essentially straight up and an F 15 that, near supersonic speed, and all of a sudden, your world [00:42:00] lights up, it is very disorienting.

And I did not anticipate that. So, it was one of those oh, gosh, moments. When that thing lit off, it was, it was really, really spectacular. But it was all over in a matter of seconds. And I got my head back in the cockpit, recovered the airplane, and we came home. And that one was none of neither of those last two were at a target, but they were most successful in that they went up all everything separated and did what it needed to do.

Acquired the target. It was assigned a particular star and guide it appropriately. So, they were successful, um, in and of their own right. And after that, we just stood ready at the President's direction if we needed to do something else.

Charles Galbreath: Yeah, thanks, Aggie. You know.

Jen "Boots" Reeves: That was great.

Charles Galbreath: Really appreciate that.

So, Jack can you talk a [00:43:00] little bit about the lessons learned from these experiences. Both the live intercept and then the follow on tests and how you're passing those lessons learned to the space test course? What are some of the key points that you try to ensure that the next generation takes away from these, this historic program?

Colonel Jack Anthony, USAF (Ret.): Well, that's, I'd like to share with you that we do speak with the space test course folks at Edwards every class. And that's a whole lot of fun. Of course, everyone enjoys hearing General Pearson's replay of the mission and the program and the Edwards side of the, of the activity. I talk about the Cheyenne Mountain U. S. Space Command part. And one of the things we did is, is four demonstrations. It was something dreamed up by the AfoTek, test and evaluation people. And our leadership at U. S. Space Command [00:44:00] were pretty interested in doing an ops demonstration where we could at a faster pace do the command and control, the mission planning, and weapon system airplane generation.

You might say it was a hurry up or, or go fast type of drill. So, we did two of those demonstrations, more of a glorified tabletop, making sure we had the interfaces correct and understanding the timing of all this, an air system, armament, warhead and space orbit determination. So, that, uh, did that twice.

And then we felt pretty good about it and General Pearson and his folks felt really good about, hey we can do this, and Colonel Brock Strom, the director at Los Angeles Air Base modified the contract so that our folks [00:45:00] at Edwards could generate the missile and the airplane a lot faster than they do in the test program. Did that twice and really found that the the concept of hurrying up with this system and using it if needed, on Presidential direction was in the realm of the possible.

We had several leaders following along what we were doing, and they understood the guidelines, the constraints and limitations of what we're doing. So, we started to play this system more and more in exercises. And what I found was the leaders who were paying attention in the classroom instruction on how the timing of all this works, were pretty, pretty confident, but there were some who really didn't, have the knowledge and their ignorance, bred indecision.

They would be shall we say, [00:46:00] hesitant, as we brought to them a suspense. We need to make the decision now or we need to update the orbit. So, the big lesson learned was from the folks on the flight line or in the mountain. Everyone understood the physics, the science, the art behind what we're doing.

And if you didn't understand it, it was time to learn. And I'm happy to report the commander of the Space Command made Thursday morning Mountain Day and all these generals would come up there and circle up with us to learn about this system and other systems. So that when they were back and their decision-making chair, they understood what we were going through.

I hope that answers your questions, Charles.

Charles Galbreath: Yeah. Thanks, Jack. Appreciate that.

Maj General Doug "Aggie" Pearson, USAF (Ret.): I can add just, just a touch to that, but we were challenged if you will, to simultaneously develop this system to be an operational [00:47:00] weapon system. Normally, you know, in the classic path of testing, we develop a weapon system and then we develop the operational aspects and training and all that.

But we were asked to do this concurrently. So, Jack's point about all this coming together to be able to actually do it was very real and it added to the sense of urgency. So, we were training pilots, we were looking at the logistics. , were looking at maintainers, the enlisted folks, and (inaudible) some loaded.

We were trying to do all those things concurrently and (inaudible), doing developing the actual checklist and then expand it across the Air Force. I think that effort demonstrated, at least to some of us, the need for Space Force.

Doug Birkey: Yeah, let's turn back to you, Charles and [00:48:00] Jen. You know, I'd like to really kind of ask you a question about when you look at the current environment, the challenges we face and the overarching goal of deterring aggressive actions on orbit.

I mean, how do you see the legacy of this test fitting to the equation? We talked about it up front, deterrence. Any key lessons for our current leaders?

Jen "Boots" Reeves: So, I wanted to start, with this because, you know, this is such an amazing situation. It's just an amazing endeavor that took many years to fully execute.

We've just heard for the last many minutes, about the details and the planning and the expertise and the lessons learned. One of the things that I am going to bemoan, though, tragically, is I don't know that this is well known enough to our younger generations, right?

Golly, 1985, that was a hot minute ago. And, you know, the vast majority of our young Space Force members [00:49:00] weren't even born for 9/11, much less 1985. So, but I think the lesson here that we have to take on now is we have to look back and embrace these experiments, these sort of one-off endeavors that we did as a military. As an Air Force with our space specialty and look at those lessons and see how we can apply them, not just in an experiment.

To see that we can do it. But should we do it? Should we operationalize all or parts of what it is we have gleaned from this endeavor back in the 80s? I think, I really think we should. And so, I guess, and I know Doug, I know you're going to love this one. The first lesson is to not forget our history, right?

Let's learn from the history. Try not to relearn lessons and [00:50:00] use those lessons from those brilliant people who have already gone before us and see what from them we can apply as we move forward and look forward. We learned a lot of lessons out of this and let's try and apply those as we continue to operationalize what it is we do in space. Particularly in light of, this new threat environment that we find ourselves in.

Charles Galbreath: Yeah, I'll just pile on that. I really resonated with General Pearson's comments about we're all one big force. We're all trying to achieve our national objectives, our national military objectives, but it requires some deep specialization and some expertise within dedicated military branches, coming together.

And so, you know, this is not a time for a pickup game. We need to have no kidding dedicated experts that know this stuff inside and out in order to make it operational. And whether that's air [00:51:00] expertise or space expertise or ground or maritime, we need to have that. And brought together to truly affect joint outcomes, and cross domain effects.

That's gonna be so critical in any future conflict. And I really just want to applaud both of General Pearson and Colonel Jack Anthony for what they have done in the past and allows us to really stand on the shoulders of giants. So thank you both for this great discussion.

Doug Birkey: And I just want to add my thanks Charles, Jen, and General Pearson and Colonel Anthony. It's been our honor.

Maj General Doug "Aggie" Pearson, USAF (Ret.): Thank you very much for having us today. It's been a pleasure to share this information that we have and things that we hold dear. And we're really proud that you guys are going to share this with, as many people as want to listen.

Colonel Jack Anthony, USAF (Ret.): It's been a real joy for me the, space guy, on the part of this program. I always enjoy listening to General Pearson replay the missions. [00:52:00] We get a chance to talk to the space test folks and now the flight test folks at Edwards, and we share with them this amazing history and we, we ask them to, to do as we did back then, and dare greatly to do great things for America in the air and in space.

Thanks.

Charles Galbreath: Thanks a lot, Doug. And a reminder for folks that, yeah, Friday the 13th, September 13th marks the anniversary. And while we're talking about some space heritage, let's not forget that September 14th, this Saturday is the birthday of General Schriever. So, you know, pretty interesting coincidence.

And of course, we'll see you all next week at Airspace and Cyber Conference, uh, out here at, uh, in D. C.

Jen "Boots" Reeves: Bye everybody.

Doug Birkey: And with that, I'd like to extend a big thank you to our guests for joining in today's discussion. I'd also like to extend a thank you to our listeners for your continued support and for tuning in to today's show.

And if you like what you've heard today, don't forget to hit that like button and follow or subscribe to Airspace Advantage. [00:53:00] You can also leave a comment to let us know what you think about our show or areas that you think we should explore further. And as always, you can join the conversation by following Mitchell Institute on Twitter, Instagram, Facebook, or LinkedIn.

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