# Interview

# with

## Mr. John J. Murphy Jr.,

## AFTC WPAFB Test Representative
## T&E Division (AFTC/ENT)
## Air Force Test Center

## Edwards AFB, California

## 27 May 2021

## At

## 1100L (PST)

## (Conducted over DAF365 CHES Teams)

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**Murphy JT:** I am John T. Murphy, Air Force Test Center Historian, and this is a TESTing voice interview with John J. Murphy. It is 27 May 2021 and it is 11:00 Pacific Daylight Time. Well, good morning, John. To start --

**Murphy JJ:** Good morning to you.

**Murphy JT:** Well, thank you. Can you provide me some personal background information? Like length of time in Test, some education background, special interests you may have?

**Murphy JJ:** Sure, so I started out as a student intern from the University of Cincinnati in 1984. I was assigned to work in what was then -- very briefly I think, just for maybe the initial student internship term -- it was still Wright Laboratory. I was actually in the Propulsion Laboratory working as a student intern. I did that -- the school I went to the University of Cincinnati was one of the forerunners of cooperative education. At that time they were still on quarter systems. So I did alternating quarters of going to school and then interning at Wright-Patterson. I started in March of 1984. I experienced some really nice research and development -- developmental testing, if you will, experience. Working on what then was the potential replacement for firewalls in Air Force aircraft, worked on a project and -- I can see your keyboard now, John. Then also there was another issue out in the field going on which was a nice experience for a student as a test engineer, as an assistant to the lieutenants that I was working with. Where we were investigating electrostatic discharges in Air Force aircraft fuel tank foam in the field. I think it was specifically A-10 and C-130's. So we figured out what the reason was. The foams were conducting static electricity from the fuel sloshing around in the tanks when the tanks emptied. So that was the forerunner in creating the current non-conductive foam used in those aircraft and a few other aircraft. I accepted a full-time job in 1986 s in the Air Force Research Laboratory, Flight Dynamics Directorate. One of the programs near the end of my student internship period was investigating putting fire protection in the Air Force aircraft void areas, the leading edge and the trailing edge and other areas of the wings in Air Force aircraft and we call that a dry bay. When I hired on full time, I hired into the organization that had been selected to actually conduct the testing. So I became the project engineer as one of my first assignments as a full time employee. Looking at various options including what became basically the core solution for the Air Force, which was using halogenated agents to suppress fires in the dry bay. So that was a great experience. It was a nice transition, actually it was very serendipitous that happened. I worked in that organization up until -- ironically, up until about six months ago or so, till October of '20. I graduated from the University of Cincinnati with a B.S. [Bachelor of Science] in Mechanical Engineering. Then I was encouraged to go get my Master's Degree, which I dutifully did. Class by class I went to the University of Dayton and got my Master's Degree in Mechanical Engineering in 1991 from the University of Dayton. So that covers my educational background. I did finish Air War College in Jun 2019.

**Murphy JT:** Oh, good.

**Murphy JJ:** I considered taking Air War College (indiscernible) for many years, but being in a more senior role I think I understood in the last few years how important it was to participate in PME [Professional Military Education]. I think it was a great experience and I would

recommend all civilians take the different levels of military education. I think it brings us closer as a team and it puts us on the same page in terms of the leadership philosophies and leadership decision making and how we lead in the Air Force. So I think I decided to go ahead, John, and take the full time position offered at WPAFB because honestly I had such a great experience as a student engineer while I was at the University of Cincinnati. We were doing researching, developmental testing and -- so I think it's fortuitous. I didn't really actively look for it. The connection that I didn't mention before to --well, how did you just happen to get into the test side of the organization that was going to test the drive bay fire systems that might be proposed to be put in Air Force aircraft? Well, one of my section chiefs in the office I was in, in the Air Force Propulsion Laboratory as a student engineer, moved over to Air Force Research Laboratory/Flight Dynamics Directorate that I hired into full time. It was kind of interesting, John, because I was – I think it was right about -- it was the middle of finals week of fall quarter of my last year at UC (University of Cincinnati) and my Professional Practice Advisor at the University of Cincinnati called me and wanted me to fill out an SF-71. Oh, boy. (Indiscernible) before -- I don't know if you remember that job application form , but I'm right in the middle of finals week studying for some finals and he wanted me to fill it out and turn it in the next day. So that was kind of tough, but I was interested enough that I filled it out by handand took it into my UC Professional Practice Advisor. Then I got an interview out of it over the break, between fall and winter terms. I guess the rest is history! I did get the job!! I think I threw a lot at you there.

**Murphy JT:** No, that's fine, more the merrier. Can you point to one thing or maybe a couple, or what attracted you to Test?

**Murphy JJ:** I think I sent both my resume and bio to make sense out of what I'm saying here in terms of chronologically what happened. Really, I think what attracted me to Test was when I realized the significance of some of the projects they were involving me in as a student engineer, such as the fuel tank foam replacement project due to this static discharging problem, andfiguring out why that was happening and what the solution would be. In addition, working on the AF aircraft firewall replacement program to transition from just simply having metal, aluminum fire walls to fire walls that would contain heat and the fire generating the heat, which obviously can cause damage. Those types of projects really piqued my interest. As I alluded to the third thing was the AF dry bay fire protection program which actually segued into my full time employment. So the first thing which attracted me to Test and Evaluation was being exposed to the RDT&E [Research Development Test & Evaluation] as a student engineer. I would say the other thing is when the Title 10 USC Section 2366 Live Fire Test and Evaluation Law was passed in 1987 and our organization was selected because of the fact that we had a test facility at Wright-Patterson [Air Force Base, Ohio] in Area B, the Aerospace Vehicle Survivability Facility. The Air Force leadership designated our organization to be the -- what we call now the participating test organization for Air Force aircraft Live Fire Test & Evaluation (LFT&E) covered systems. Our Technical Director, who was given the responsibility of standing this mission up and putting us in a position to work with the AFLCMC System Program Offices selected me to be -- basically to be his action officer, to work with him as a Test Manager. The first program AF fixed wing LFT&E program was the C-17 transport aircraft.

During the planning for that we were also asked to help plan, execute, and report on the first AF weapons Live Fire Test & Evaluation program for the AMRAAM missile acquisition because of our experience and our AVSF. So that I would say is the second most prominent work related area where I really felt like developmental and Live Fire Testing has made for a impactful, rewarding career. In early April, a achieved 37 years of Federal Civilian Service!. I've thoroughly enjoyed that -- about the first 15 years or so in AFRL [Air Force Research Laboratory], involved in R&D type testing and the last 20 or 22 still some R&D, but primarily Title 10 USC Section 2366 Live Fire Test & Evalutation of AF aircraft covered acquisitions. Basically, I have technical directed or managed all the Live Fire Test & Evaluation programs the Air Force has been required to address by DOT&E [Director Operational Test and Evaluation] since inception of the LFT&E Law in 1987 and I've just thoroughly enjoyed it. I've felt the team I've worked with and has done a stellar job with the test capabilities and resources available! I think it has been very gratifying and it makes me feel like we are supporting the Test Mission of the Air Force to the highest degree that we can. It's been a pleasure and I hope to be doing that for 10 more years, or more.

**Murphy JT:** Okay, well that kind of leads into my next question. With your initial involvement in the Test, in Test itself, how has that affected either your personal or professional ambitions?

**Murphy JJ:** Well, 37 years of experience and counting in RDT&E has taught me RDT&E is one of many important aspects of AF acquisitions. I am at least wise enough to know that RDT&E is not an end all. RDT&E has a place at the table and it's always been our job to make sure that where it's appropriate -- sometimes test means virtual Test. It means modeling and simulation is efficient. Sometimes there's gaps, there's missing data and empirical testing is needed. One of the things that a lot of us that have been in the Test world hear for a number of years, you know, we've been the proponents of a philosophy of model-test-model. Model, Test to fill the data gaps, improve the model, and you keep that cycle going. So I would say my big lesson learned is to be part of the Test voice on an acquisition team and to make sure that we only advocate for the modeling and testing that's necessary to make sure that system can function properly in the environment that it was intended,and our warfighters are safe and survivable.

**Murphy JT:** Okay, great. That's good. Can you share a couple of some of your stories? Do you have any memorable stories? Many years you've got to have something.

**Murphy JJ** 12 A. Yeah, in terms of the ones that I would want anybody to publish -- of course --

**Murphy JT:** You're censoring me. (laughing)

**Murphy JJ:** We've all had our encounters with -- whether its colleagues, or certainly supervisors, you know? With me being in my 38th year, I certainly go back far enoughto have a few good stories. I had some “old school” supervisors that believed that unless you had some conflict or “fire and smoke”, there wasn't something going on. It's a little bit of grinding and adversarial stuff sometimes. –As I mentioned earlier, I was the AF Test Manager for he first ever Air Force fixed wing Live Fire Test & Evaluation program on the C-17. I remember I was flying to Washington D.C. for a meeting with the DOT&E Live Fire Test & Evaluation Director and HQ USAF/TE. My -- the Technical Director for our unit was already there for some other

efforts, but I was meeting him there and we were going to to discuss the C-17 LFT&E Program status. So I get on the plane in Dayton and lo and behold my seat mate -- the person next to me at the window is Brig Gen Wolfenbarger [Janet C, future Air Force Materiel Command Commander].

**Murphy JT:** Oh, wow.

**Murphy JJ:** It was -- well, she was -- she had just gotten her first star. She was at the C-17 SPO (System Program Office) So I would have to say that we've all had -- eventually had that experience where we found a point and whether it was just a random stranger or a family member. Somebody where you had an engaging discussion and you get off the plane and realize that time went so fast. You know, General Wolfenbarger was so gracious. Of course we couldn't talk about certain things it wouldn't have been appropriate to get into any level of detail and be talking openly on a plane -- but on a very high level. It was very satisfying to be able to spend time with somebody that eventually became a four star General. She was very interested in my perspective from a – a level of detail that we could talk about there. To the point where she was going to the Pentagon too and when we were getting off the plane she said that if she could work her schedule out she'd love to try to have lunch with myself and the Technical Director that I was meeting there to have the meeting at Air Force Test and Evaluation. That didn't come to be -- no, as a general she – her time was -- but she did connect back and say she apologized. For the duration she was at the SPO, it was kind of interesting because she had told me next time you're over there, you know, to the Program Office, stop by my office and say hi. So – and I did. I mean, I didn't every time, you know, I think that would have been a little bit gratuitous right? But I did stop a couple times. That was a really memorable event. Another one that's a little edgy -- a little more edgy --General Fain [Lt Gen James A, Jr.] was the commander, but was ASC [Aeronautical Systems Center] then. He was coming by and he was touring organizations, including ones that had facilities. So he was going through the Aerospace Vehicle Survivability Facility, which is an Area B. So we were taking him through and we were showing him what we were doing. I think this was post -- this might have been -- I think we were doing some testing on C-130. So we were showing him some articles we were building in our facility and he was just really engaged. A heard a lot of people were intimidated by General Fain. He was a gregarious kind of guy and he was all in. I've heard a few people say he was like a General Patton type. He was that passionate and so sometimes that would rub people wrong, but I just -- I wouldn't say I was in awe of the guy, but I mean he exuded character and you could tell he was passionate about the Air Force mission. So we took him through all these tours -- and so as a quick background piece the facilities that -- so this was 704[th] Test Group, Aerospace Survivability and Safety Office, which is where I came from. The organization I had been in from when I first started my job and then it got moved over from the AFRL into AFTC, and the Aerospace Survivability and Safety Office is currently is under AEDC. [Arnold Engineering Development Complex] One of the facilities, John, is an indoor test range and it also has a munitions storage capability. You can download and modify rounds and it has a big long testing tunnel. When I first came there we were testing 57 millimeter, 40 millimeter, 37 millimeter rounds in there. Which we don't do those bigger rounds anymore, but when General Fain saw that I mean you would have thought a light -- it's like he just got so excited. Of course he had to

move on to the next part of the tour, but while he was still on the tour, John, he called back. Of course for a DV visit, you always include on the agenda the POCs and there numbers. His executive officer called back and called me on my phone and wanted to know how General Fain could schedule time in to the gun range to fire his sidearm. Unfortunately, we had to tell General Fain, the ASC commander that well, he wasn't allowed to do that in our facility. He was very gracious about it. We got something simple back like I understand or whatever. I guess in a way, indirectly, when somebody recognizes to the level that he did what the purpose and function of that test capability is -- even if he was thinking of it from a personal standpoint I still think it means that it was registering in his mind. So it's like you take what you can get, you know? That was kind of fun and like I said some people just were -- I mean they would -- I heard stories of people that they knew General Fain. General Fain would just pop in because he found out that some people were so intimidated by his mere presence that they would find something else to do. Most people thought hey, the three star General is coming I don't want to be there (indiscernible) on when he is in your facility. I guess people sometimes can feel awkard in his presence -- I didn't at all I just thought he was great. The General Fain story is a favorite which pops into my mind when somebody asks me do you have any neat little stories.

**Murphy JT:** Wow and they were very good stories thank you for sharing. So now looking back if you knew then what you know now, 30 plus years later. Would you still be as interested and as gung ho for the Test environment?

**Murphy JJ:** I absolutely would. I know -- obviously I mentioned already I recognize that -- you know, it was a little serendipitous that I got the job. That I just happened to be selected for that student internship and started out -- it was the Propulsion Directorate -- Fuels and Lubrication Division, Fire Protection Branch. Which, by the way, by the time I was finishing my student internship up it was -- as part of AFRL was being disbanded. So a lot of their physical test tools and stuff --after I took a full time jobat WPAFB and ironically inherited a dry bay program from the AFRL org I worked as an intern. Little test articles and test assets and stuff like that and basically took over the – you know, they were kind of the peacetime version of fire safety in the Air Force. Whereas the organization I hired into full time was the combat or the wartime mission scenario. How do we make our aircrafts and our pilots, our warfighters survive in the weapons systems that we put them in when they're getting shot at? So I absolutely would. I mean, I feel I honestly have a pretty high degree of passion about Test and Evaluation at this point, John, I was very comfortable in the organization I was in. Then I saw something sent out by Mr. Wheaton [David G., Engineering Directorate Chief] as to whether anybody was interested in some of the staff jobs in AFTC/EN and I put my name forward. I thought, you know what, it wouldn't hurt to build on what I have done in my almost 37 years of T&E in the Air Force. I could very comfortably keep working this tech[nical] director job down at the Aerospace Survivability and Safety Office (704 TG/OL-AC), but I think some of the knowledge and some of the skills I've learned by going to an AFTC level unit in a job as the Wright-Patterson Air Force Base Test Rep I probably would have a better opportunity to share my knowledge and experience at that level. I have been in this new AFTC WPAFB Test Rep position for about eight or nine months. I definitely feel like changing positions was the right move. I feel like I'm

involved at a higher level and I'm able to better advocate for the importance and the need for testing to be a voice in all of our acquisitions.

**Murphy JT:** Okay, well thank you that's very good. So now you can do this from your current position or throughout your career, however you would like to look at this one. How much collaboration do you see or experience in your little section of test?

**Murphy JJ:** You know, it's quite a bit. For example, I was just on a call before this -- I mean, there was a little bit of a break, but right after lunch -- with Program Office people for LCMC at Hanscom (Air Force Base, MA), including their test people. Who actually schedule the meeting with center test authority people from Wright-Patterson with the **MNS???** people from **EZJA???** At Wright-Patterson. The test people from the organization that I came from **OLAC???** -- myself and another individual and he who -- we both have experience with Live Fire Testing. So it was -- the purpose was a live fire test meeting. So you had AFTC; you had several LCMC components; the Program Office, the Center Test Authority and (indiscernible). Then even with an AFA's AFTC the test -- the participating test organization for Live Fire Testing. So what a wonderful collaboration. Everybody was sharing. Some of the people in the Program Office they'd never done this before. They didn't even know what Live Fire Testing is -- that it was a law first. That **STIC**??? was passed in 1987 --what you're required to do. So there's a little bit of education. A lot of talking about lessons learned from similar programs that would help them and certainly, you know, coming up with a way ahead and a strategy. So I don't think the collaboration gets any better than that.

**Murphy JT:** So from your experience in Test, what would you say --would you say collaboration has increased, decreased, or about stayed the same in your view?

**Murphy JJ:** I would say from my personal experience that it's increased. In the areas that I've worked I think – for example, when the Live Fire Test law first came out all the Program Offices they didn't want to have anything to do with it. They thought it was just another add on requirement that they weren't funded test for. I mean, they would tell the DT&E [Developmental Testing and Evaluation] people that they weren't going to do it. I mean, this is going back to the late 80's with the C-17 and some of those earlier programs. If you jump ahead to now here you got his Program Office that actually is at Hanscom and they want to do it right. They want the right people with the knowledge and expertise to help them meet the requirement and to do it the best way possible. I think that's a tremendous change. That's over 30 years going from never heard of it; not funded for it; not going to do it to help us do this. We want this to be a model program as far as Live Fire Testing.

**Murphy JT:** Okay, that's great. Now here's one for you to think about. So if there's one thing you could change, what would it be?

**Murphy JJ:** If there's one thing I could change --

**Murphy JT:** If there's nothing, then there's nothing.

**Murphy JJ:** Well, I think one of the things I see, John, is that the test capabilities, the physical test capabilities are --they're old. I think they're -- most of them, not all of them, but most of

them are under maintained. What you have is – is you have people and teams that make up for that and compensate for it, but there's going to come a time where you and I know that, you know, a mechanical thing -- physical things eventually have -- they're going to break. They're going to not be able to do what they were doing, but because of people's passion for the Test Mission -- they go over and above and they make things work. I think that we need to treat Test capabilities like we treat aircraft in the Air Force inventory. I think there needs to be a preventative maintenance program for all Test capabilities. I think that's a big thing that's missing.

**Murphy JT:** Okay, that's very good. I like that. So in your area what have you experienced as the greatest challenge in the Research Development Test and Evaluation Enterprise?

**Murphy JJ:** I would say the greatest challenge is not -- just like capabilities on an aircraft, or you could say on any widget --is for test, instead of whipping out RDT&E. For test to be a --I guess an equal voice amongst stakeholders in a program at the table. I know my experience in the organization I was in is very little trickle down of funding to do preventive maintenance and even get new capabilities to execute the Test Mission. Also a lot of blowback or pushback from programs who don't understand that a lot of these test organizations -- that they function on reimbursable budget authority, not direct budget authority. In other words, you have a requirement and part of it says you need to do this test to validate that you can perform the mission. A lot of these Program Offices think that the Test communities all paid for. When they realize that they're going to have to budget funds within their overall budget for the program sometimes it creates a little bit of chaos. So – and that ebbs and flows with different people in the Program Offices coming and going every couple of years. That's been a problem that I've seen throughout the time I've been in test is being respected as a critical voice at the table and having the Program Offices -- the acquisition programs plan, including dollars as well as potential assets needed early in the program. I know that's one thing in my new role that we're -- we have summits going on with AFRL, with LCMC, with AFT&E to address some of these issues early on in the process. So, you know I -- anyhow, that would be my answer for that.

**Murphy JT:** Thank you. Very good, very good. So now General Brown, Chief of Staff of the Air Force, he has the philosophy of accelerate change or lose. How do you think that can best be applied to the Test Mission?

**Murphy JJ:** Well, I definitely agree with that. I know in the last couple of years in the tail end of my time in the 704's we spent a lot of time mapping the capabilities that we'd been entrusted with. The task capabilities -- the two task facilities: the Survivability Facility and the Landing Gear Test Facility through the National Defense Strategy. Obviously part of that -- which is insinuated by General Brown's statement is this grand competition. If we're to step up and meet the challenge from these adversaries then we need to make sure that both in our people resources and our Test and Evaluation capabilities that we're able to conduct the kind of Test and Evaluation that will help us to achieve that goal and be successful. So somewhere rooted in the middle of that statement is a call -- it's almost like a call to arms. It's a passionate plea for everybody in the test community to do – within yourself and as teams to step up to the challenge. Now's not the time to be cruising and just happy with your little corner of the Test and

Evaluation world. It's let's step up to the challenge we need to do more. I know you don't always have those resources at hand, but dig. Dig deeper and find out what you can do. I think it's an excellent statement on his part and I know in the organization that I'm in now and I just come from we treated it as a very positive, proactive passionate call for all of us to step it up a little bit.

**Murphy JT:** Well, what changes do you think Test should incorporate to improve the Test and acquisition cycle?

**Murphy JJ:** Well, I know one thing I'm involved in with a summit with AFRL that we're now doing every quarter is -- I wouldn't say this is a new idea, John. It's that kind of thing if you have to -- you know, it's like a mantra almost. Early involvement, you know, short, mid and long term planning to tie S&T [Science and Technology] technology that we're trying to bring faster to the field and accelerate acquisition timelines. So we got -- I think the key thing is we have to keep -- we have to get out of our stove pipes and find a way to work with AFRL, with the Program Offices of LCMC and accelerate the identification of technologies, the transmission to the field. I think digital engineering is looking like one of those pathways that's definitely going to help with that. From a test standpoint we have to be part of that. So I know I've worked with my boss Paul Tierney and with Mr. Wheaton in contributing thoughts to how are we and AFTC going to enable and embrace the digital engineering transformation as one way to advance the place of Test and Evaluation at the acquisition table? So I think we have to be really earnest. It can't be a clock filling exercise. We have to really believe it and we have to be -- we have to – it requires action. It requires concrete action not just words on charts. We really have to turn things up as far as using technology and collaboration with other organizations for us to speed up and still keep the confidence level and the effectiveness of Test and Evaluation at the highest level, while we shorten the amount of time for that part of the acquisition process. To help us get these newer capabilities in the field.

**Murphy JT:** Sure. Well, John, we talked about a lot of topics today. Would you like to make any additional comments? Is there something that we missed?

**Murphy JJ:** No. One, I appreciate the opportunity to share my thoughts. So thank you for choosing me and dedicating some time. So hopefully I've given you some useful feedback. Again, as you already asked in one of the questions earlier -- I've been very excited and very proud to have spent basically my entire career in the T and E world. I wouldn't have it any other way and certainly any time historically -- if you want to talk more about things like Live Fire Testing, which I was there from the beginning of that. I guess if you want to say type of testing, maybe as another story somewhere else down the line, I'd be happy to do that. So thank you again and look forward to your feedback and I'll be responsive. What's the way ahead? Is this going to show up in a publication or -- you know, what's the plan?

**Murphy JT:** Okay, John. Give me one second. I want to take you off the record. This concluded the interview.