Hearing on Removal of Toxic Lead from 100LL Aviation Gasoline

Good afternoon - Chairman Khanna
and members of the Subcommittee on Environment

My name is Chris D'Acosta, and I serve as the CEO of Swift Fuels, LLC a privately held firm located in the Purdue University Research Park in West Lafayette, Indiana. Briefly regarding my personal background, I was raised in Texas, graduated from Texas Tech University, and I have worked and consulted for several large oil and gas companies throughout my 42-year career. I lived in Europe and Latin America for a total of 8 years, and while working in the US, I traveled across the globe on several occasions. While working the past 10 years in West Lafayette as CEO of Swift Fuels, I have been invited to participate on the industrial Advisory Board of the Purdue Chemical Engineering Department.

At Swift Fuels, our firm specializes in developing and commercializing fuels and process technologies to solve critical challenges in the oil, gas, and petrochemical industries. Regarding 100LL aviation gasoline used in piston aircraft, Swift Fuels is the chief architect and sole provider of UL94 unleaded aviation gasoline sold today across the United States, which is FAA-Approved with ASTM International specification (D7547), and UL94 is OEM-endorsed for over 66% of the US piston fleet. My firm is also actively working to provide the full fleetwide replacement to remove toxic lead from avgas in the months ahead using a product we call 100R – a 100-motor octane, 10% renewable, premium grade, clean-burning aviation gasoline.

So, why do we use Lead in avgas for piston aircraft? Lead is an octane booster added to gasoline to prevent engine detonation (aka "knocking" or misfiring) which can lead to engine damage or engine failure. Lead was first used in gasoline back in 1920's to improve engine performance. It was also a vital feature in the US/allied victory in WWII – used in piston aircraft. Lead was used in auto gasoline for decades. But concern for Lead toxicity grew in part because elemental Lead is not biodegradable – its harmful effects accumulate.

As a result of the Clean Air Act of the 1970's and other legislative procedures, Lead was eventually removed from auto gasoline between 1975 – 1996 for all except piston engines using 100LL aviation gasoline. That's because the octane needed for the higher compression piston aircraft (called 100-Motor-Octane) is about 18 octane points higher than standard auto gas – a very high threshold to meet. Finding alternatives to Lead was challenging and complex.

Since 1993, the FAA and the EPA have shared certain responsibilities delegated from Congress to find and evaluate the various alternatives to Lead in aviation gasoline. The FAA specifically set out to find an effective method to transition an unleaded replacement for 100LL -- to eliminate toxic lead emissions. It has been a long and arduous process because many of the available chemistries to boost octane may have an impact on the legacy piston fleet. The US piston fleet spans some 80 + years of engine models, airframe types, fuel systems, materials of construction, and the like. Different chemistries have different impacts.

Why is Lead getting renewed attention now? Congress stipulated a requirement in the FAA reauthorization Act of 2018 called for the FAA to work with the National Academy of Sciences, Engineering and Medicine to study the problem of Lead in avgas and recommend alternatives. The NASEM issued a holistic report on the subject January 12, 2021. Then recently a proposed EPA endangerment finding has been discussed for possible proposal in 2022 after many years of contemplation. The EPA has reconfirmed that it believes Lead is particularly harmful to children exposed to lead near airports. Thus, such an endangerment finding could drive the actions of 100LL fuel producers and regulators to seek and implement a solution to replace Lead in avgas.

What can be done to streamline / accelerate this progress? Swift Fuels is actively working "full-throttle" on a proprietary certification program for a 100-octane replacement to 100LL. We collaborate daily with FAA and industry leaders from ASTM, engine and airframe OEM's on our replacement to 100LL. Safety is a top focus and the work is very tedious even for the top experts in the

field. Other private firms have different fuel alternatives and different approaches to achieving certification and the critical OEM endorsements.

Due to time-critical need for a transition and the implied variation in approaches here, industry leaders have recently formed a team of stakeholders called EAGLE which Steve Dickson (FAA), Pete Bunce (GAMA) and Mark Baker (AOPA) announced in mid-February 2022. EAGLE plans to work to enact many of the recommendations cited in a report issued by the National Academy of Sciences, Engineering & Medicine – that include recommendations on how to: a) incentivize unleaded avgas consumers and stakeholders, b) seek synergies to streamline R&D methods across the industry, c) confirm the readiness of the aviation field infrastructure, and d) create options that sustain the needs of GA pilots using 100LL leading up to the 2030 deadline without suppressing the growth of unleaded avgas.

UL94 was implemented without a government mandate. Pilots value the premium quality product and communities don't want toxic Lead emissions. Market forces are now in play, and we are beginning to see business leaders step up, striving to become part of the new norm of "unleaded avgas". For example, the largest university flight school in the country announced yesterday that it was planning to move their entire training fleet - over 100 piston-powered airplanes and helicopters - to use unleaded avgas. There is now growing momentum to move to unleaded avgas.

I appreciate the opportunity to engage with you today on the removal of toxic lead from avgas. I am happy to discuss these points outlined above or additional topics as you have questions. As we strive to move our industry forward towards an unleaded future, I am certain we can find mutually beneficial synergies by working together collaboratively to ultimately achieve success. Accordingly, I look forward to any future opportunity to work together.