



Episode 237 – Is the Outer Space Treaty Built for Today’s Space Race?

Speaker: Hon. Peter Beshar, former General Counsel of the US Department of the Air Force and Space Force – 20 minutes

John Gilroy:

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John Gilroy: Welcome to Constellations, the podcast from Kratos. My name is John Gilroy and I'll be your moderator.

Today, we're diving into the legal, ethical, and operational challenges shaping a new era of activity beyond earth, from resource extraction on the moon to emerging norms of behavior as more actors crowd the space domain. Joining us is the Honorable Peter J. Beshar, former General Counsel of the US Department of the Air Force and Space Force, whose career has spanned the front lines of space law, governance, and operational risk. He'll help us understand where longstanding treaties meet today's realities, how nations can navigate emerging gray zones responsibly, and what it'll take to build trust as humanity expands its reach beyond earth.

Peter, a lot to chew here. Are you going to jump in right now?

Hon. Peter Beshar: I'm delighted to join you, John. And the space world is having quite a moment right now. I was in a taxi in New York City last month and the driver, unprompted, turns to me and says, "How about that SpaceX IPO?"

John Gilroy: I know, I know.

Hon. Peter Beshar: And then 27 million Americans watched the reentry and splashdown of the Artemis II capsule. The NASA administrator, Jared Isaacman, said, "People are looking up again."

John Gilroy: Yeah. Well, I go in the Metro in DC and we have young people with NASA T-shirts. It's a real cool thing to have now. So you got to get one of those T-shirts, Peter. But before we talk about T-shirts, let's jump into some of these basic fundamentals.



When we talk about the non-appropriation principle in the Outer Space Treaty, what does that principle really mean in practice when states and companies are preparing to extract resources that could enable long-term human presence on the moon?

Hon. Peter Beshar: Yeah, despite it being so vast, there are actually quite few laws that govern the space domain. The most important was negotiated in the height of the Cold War and in the midst of the first Space Race principally by the United States, Soviet Union, and the UK. And it's called the Outer Space Treaty of 1967. And now, more than 100 countries have signed onto that treaty, John, including China. And it really is considered the Magna Carta of the space world.

John Gilroy: Wow, it's been that long and nothing in between. That's quite a gap in the world of technology, isn't it?

Hon. Peter Beshar: I think it's really that's the most important law, even though it's 60 years old, that there are other treaties that have occurred, the liability convention is important, some acts and statutes and the like, but the outer space law is really the Magna Carta.

John Gilroy: Peter, you've spent a career navigating the space between legal theory and real-world behavior. What helps the distinction between using resources and claiming them hold up once people have equipment and infrastructure on the lunar surface?

Hon. Peter Beshar: Yeah, and so just to take a step back on it about the way that the Outer Space Treaty still impacts so many activities going on currently, a key provision, as you've said, is the non-appropriation provision. And what that basically says is that no country can assert ownership over the moon or any other celestial body on the basis of a claim of sovereignty by occupying it or by any other means. So neither the United States nor China nor any other country can claim the moon as theirs.

John Gilroy: Peter, based on your experience with compliance and oversight, what kinds of operational patterns or organizational incentives might cause resource activity to start drifting toward defacto control even unintentionally?

Hon. Peter Beshar: Yeah, and first just to think about, well, what are the resources that are of interest on the moon? It is a potential treasure trove of crucial resources. Water, ice is right up there, elemental oxygen, helium-3 gas. And those resources can support two crucial activities. One is the desire to really have a sustained human presence on the face of the moon, and so water being critical to that, but also rocket propellant, that if you can take oxygen and hydrogen and separate them through a process of electrolysis, you can effectively create a gas station on the face of the moon.



John Gilroy: My, my, my. In a scenario where multiple actors are operating in the same lunar region, what kinds of practices strike you as essential to prevent misunderstandings that could escalate?

Hon. Peter Beshar: Yeah, so let's pivot to the extraction of resources. And the OST, the Outer Space Treaty, does not address it overtly. And that's hardly surprising. As we were speaking, John, it's nearly 60 years old. There were just a couple of space-faring nations at the time. There were no commercial actors in space, and all of that has changed now. I've seen data suggesting that there may be as many as 90 space-faring nations now, and the achievements and the innovations of the commercial space world have been extraordinary.

So what the United States has been doing, particularly over the past decade, is really trying to flesh out the broad principles of the Outer Space Treaty into operational norms and what might it actually mean to have different countries or others operating, say, a lunar depot, a mining depot on the face of the earth. And so a couple of those key measures that in 2015, the Congress passed the United States Commercial Space Launch Competitiveness Act, and what that said is that if you're a US citizen and you engage in the exploration and attempted extraction of resources, you ought to get the benefit of those resources then to be able to possess them and potentially sell them.

John Gilroy: Peter, you've talked about the difference between rules that build trust and rules that create friction. When you think about safety zones on the moon, what helps them remain a tool for cooperation instead of a mechanism that shapes access?

Hon. Peter Beshar: Sure. And so the 2015 law occurred during President Obama's tenure, then President Trump took two important steps toward the end of his first term. The first was signing an executive order that really sought to give greater assurance to commercial space companies that if they invested the capital needed to be able to extract resources, that they would then get the benefit of it. And then the second vital step was the Artemis Accords. Artemis was the twin sister of Apollo, and this is part of the Artemis program within NASA. And so both NASA and the State Department started entering into bilateral agreements with the civil space authorities of a number of other countries that began to try to flesh out what those operational norms. And as you mentioned, safety zones were one of those operational norms.

John Gilroy: Looking at the Moon Agreement through a governance and compliance lens, what does its limited adoption reveal to you about what states are or aren't willing to commit to when it comes to sharing benefits?

Hon. Peter Beshar: We spoke about how the Outer Space Treaty was negotiated in 1967. Then there was the Rescue Agreement. Then there was the Liability Convention and



the Registration Convention. Four agreements that really a large volume of countries all signed onto. The last of the five was the Moon Agreement, and the Moon Agreement took the approach that really resources on the moon or on celestial bodies were the common good of all mankind. And that was a controversial provision at the time and it remains controversial today. And so President Trump made clear that the US doesn't recognize the Moon Agreement. The country did not sign onto it, nor did many of the other large space-faring nations, China, Russia, Japan. None of them signed because they thought that that did not reflect the approach that would likeliest work the best.

John Gilroy: On a broader scale, when you look at the space environment through the lens of law, risk, and responsible behavior, what stands out to you as the biggest mismatch between the Outer Space Treaty's assumptions and the operational realities that are actually unfolding today?

Hon. Peter Beshar: Yeah. Before we go there, John, maybe just pausing for a moment on the safety zones. What's the principle behind the safety zones? And really the emphasis is on safety. Both the United States and China have spoken about putting a nuclear reactor on the face of the moon. In the case of the United States, a nuclear fission reactor. And it's complicated enough to put a nuclear reactor on terra firma in the earth, but to do it in the forbidding environment of the moon is extremely complicated, obviously.

And so the goal of the safety zone is trying to create some buffer areas. So both any risks that might occur from one installation or location wouldn't cause harmful interference on another area or somebody else's actions wouldn't then cause harm to, let's say, the astronauts or the humans who are trying to support some of these activities. And so I think the principle of a safety zone is extremely sound.

Then the question turns to, well, how do you implement those in practice? And there, again, the Artemis Accords lay out a number of sensible steps of public notification that if you plan to establish an installation, then you ought to publicize that fact so that others can be aware of that and plan accordingly. You may have seen that the NASA administrator recently made an announcement about the moon-based perimeter and what the preliminary plans might be of the United States. And then also, the focus is supposed to be on scientific discovery and technological innovation and that these are temporary concepts. They're not permanent keep-out zones.

John Gilroy: With domestic space resource laws emerging around the world, what signals do you think these national frameworks send about how states envision the balance between commercial opportunity and broader international responsibilities?



Hon. Peter Beshar: And I'll go and address the question that you posed about the mismatch because I think it's an important one. We've been speaking about Article 2 and the non-appropriation clause. Article 4 of the Outer Space Treaty talks about essentially a prohibition on nuclear weapons being placed in orbit around the earth. And those five words were carefully chosen. "In orbit around the earth." And the goal was to try to preclude a nuclear satellite, but not to prohibit, as was occurring when these were negotiated, an ICBM, for example, that transits in an arc through space.

And so that's an extremely important provision of the OST. And it came into debate in the past few years because Chairman Turner, you may remember, of the House Permanent Select Committee, spoke publicly about the fact that there was a potentially destabilizing threat to our national security. And over the ensuing days, it came out that that related to an anti-satellite capability that Russia was allegedly attempting to develop. So the US turned to the Security Council to try to really reaffirm this prohibition within the Outer Space Treaty. And the vote in the Security Council was 13 to 1 with Russia being the only country that vetoed it, and China abstained.

John Gilroy: Peter, you spent a lot of time thinking about the stability of shared environments. So what characteristics make certain space capabilities especially disruptive to the legal and normative fabric we rely on?

Hon. Peter Beshar: Yeah, so another key provision is in Article 9, the concept of due regard, that every nation, every state party to the treaty should be conducting its affairs with due regard. And so the government, the US government, has sought to flesh out some of those concepts, for example, to talk about really trying to limit space debris, trying to have safe separation between spacecraft and the like. And in late 2021, Russia fired a anti-satellite, an ASAT missile, that destroyed one of its own satellites in LEO, but it caused something like 1,500 pieces of space debris that even threatened the cosmonauts who were on the ISS at the time. So trying to avoid that type of activity, prior administration voluntarily agreed to a moratorium, for example, on destructive direct-ascent ASAT tests.

John Gilroy: I want to delve into this nuclear question a little bit here. The reports of a potential Russian nuclear-armed satellite triggered an unusually intense international reaction. So from a legal perspective, what makes this particular capability so destabilizing?

Hon. Peter Beshar: I think it's less from a legal capability because the OST has the provision that really prohibits that type of a development from occurring in orbit around the earth. I think it's more just from a question of physics and what the impact of any nuclear detonation would actually be in LEO.



You need a nuclear scientist to take the audience through this properly, but at a layperson's level from an English major in college, a nuclear blast in the orbit, where there are thousands of satellites that are operating today, satellites that all of us rely upon for navigation, position navigation and timing and for so many other services... Secretary Barbara Barrett of the Air Force used to say that civilians access space many times before their first cup of coffee in the morning. And so if there was a blast, it would have a very significant impact, not simply on military capabilities, but just everybody in civilian society. And so I think the government is very focused on trying to make sure that that scenario doesn't occur.

John Gilroy: Okay, let's say we have a problem. Okay. When problematic behavior occurs in orbit, you've often stressed the importance of layered responses. So what does an effective sequence of legal, diplomatic, and technical steps look like when you're trying to restore stability?

Hon. Peter Beshar: I think it's more trying to think as you look the road ahead. The space world has changed so profoundly, as we've been speaking about, so what are the right steps moving forward? Initiatives like the Artemis Accords are an extremely sound effort to try to begin to flesh out what operational norms might actually look like. And in the '60s and '70s, remember, it was the height of the Cold War and the height, particularly in the '60s, of the Space Race. And yet the leaders of the United States and the Soviet Union were able to negotiate not just space treaties, but also arms control treaties. And there were a lot of very important arms control treaties, concepts like SALT II and the Anti-Ballistic Missile Treaty and the New Start Treaty. And those have all now expired, John.

And so the hope is, moving forward, that there really is an opportunity, even with complex geopolitical dynamics, to try to have the space-faring nations of the world come together and if not agree to a treaty with the help of the UN, at least try to agree to more norms of if your satellite runs out of fuel and you lose control of it, what's your obligation to promptly notify others so that they can take responsive actions to it? That's where I hope that this will go.

John Gilroy: Yeah. Earlier, you used the phrase due regard. This due regard obligation is one of those phrases that people invoke often but interpret differently. So from your perspective, what role should it play in shaping responsible decision-making in crowded or risky environments?

Hon. Peter Beshar: And so again, due regard feels pretty soft in some ways. It can be interpreted in a host of different ways. So it's one of those broad principles that the drafters in the '60s developed without knowing necessarily what that might consist of in the future. But as we know about more of the potential tools that can disrupt the space domain, then I think there's greater focus on trying to develop those norms of behavior to try to limit space debris, have safe separation between



space assets and the like. And I think that's where a lot of the focus should be today.

John Gilroy: Norms of behavior. So how have soft norms succeeded in other sectors when formal treaties weren't available? And what gives a non-binding space norm real staying power? Enough that actors feel accountable to it in the space sector.

Hon. Peter Beshar: Yeah, and there has to be a good faith associated with it. The Artemis Accords are an effort. Those are not legally binding, but they are a set of principles that set out what should be operational practices in this more congested, more contested space environment in which the world happily largely finds itself. By the reduction in the cost of launch, the idea that there's so many different organizations that can now access space, that is a fabulous development and all that that means to try to improve. Take orbital data centers. Is that a viable concept? If so, boy, that would be a great gift to the planet to be able to really export that type of activity. So all of those I think are within the idea of trying to build out some of these behaviors, standards, not necessarily legally enforceable, but just modes of operation to guide our behaviors.

John Gilroy: So Peter, if you were drafting the blueprint for a governance model capable of supporting sustained lunar activity, what principles or structural features would you prioritize to reduce miscalculation and reinforce long-term trust?

Hon. Peter Beshar: Yeah, and so the concept of the safety zones I think is very sound in principle, that the drafters of the Artemis Accord said, "We're going to have a specific section on de-confliction of space activities." And the proponents were saying that by having some safe separation, that can enable multiple nations to be able to access what the moon or other asteroids. You've seen some incredibly innovative work that NASA has done to explore the viability of mining asteroids and what that might actually mean in the context of critical minerals and critical resources.

John Gilroy: Hey, Peter, I think you've given our audience a better understanding of outer space governance.

I'd like to thank our guest, Honorable Peter J. Beshar, former General Counsel of the US Department of Air Force and Space Force. Thanks, Peter.

Hon. Peter Beshar: Thrilled to join you. Thank you, John.