CLEARING THE PATH TO MISSION AUTHORIZATION:

A Framework Toward U.S. Leadership in Commercial Space Development

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I. Executive Summary

Regulatory certainty is crucial to support investment, innovation, and insurance for commercial space activities. There is currently a lack of clarity for providing "authorization and continuing supervision" as required by Article VI of the *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies* (Outer Space Treaty, OST, or Treaty) for a variety of commercial space activities, including the use of private space stations, satellite servicing, and extraterrestrial resource extraction. There have been efforts across the last three administrations to put in place a clear, efficient, and effective regulatory regime, referred to generally as mission authorization, to address commercial in-space activities that do not currently explicitly fall under the purview of the Federal Aviation Administration (FAA) Office of Commercial Space Transportation for launch and reentry, the Federal Communications Commission (FCC) for use of radio-frequency bandwidth, or the Department of Commerce (DOC) for Earth remote sensing.

The Task Force recommends:

1. That a mission authorization regime be put in place explicitly to cover in-space activities that do not currently fall under the clear purview of the FAA, FCC, or DOC.

2. That a single agency be given explicit authority for in-space mission authorization to avoid regulatory confusion, conflicts, delays, and excessive costs.

3. That the regime exhibit the following characteristics: a presumption of approval, hard deadlines, self-certification, transparency (including classified material if the applicant has appropriately cleared personnel), and limitations on policy objections as a rationale for authorization rejection.

4. That the DOC's Office of Space Commerce (OSC) should serve as the lead agency for the mission authorization process. Specifically, the Department of Commerce can act as a single point of contact or "front door" for mission authorization.

II. Why Mission Authorization Matters

Most traditional space activities have well-established regulatory regimes with decades of history. For example, radiofrequency use in space is regulated by the FCC and remote sensing activities are regulated by the DOC. Launch and reentry operations are licensed by the Department of Transportation and export controls are addressed by a combination of the Department of State (DOS) and the DOC. However, there are commercial space activities, including but not limited to the use of private space stations, satellite servicing, and extraterrestrial resource extraction, whose regulator and regulatory regimes have not been explicitly identified.[1] Moreover, while the United States is currently meeting its international obligation to provide "authorization and continuing supervision" for these activities as required by Article VI of the Outer Space Treaty, there is no explicit process for doing so, and prospective commercial operators are left to forge their own paths to compliance from an increasingly varied set of interested parties in the U.S. government.

Appendix A summarizes key provisions of the Outer Space Treaty which all commercial activities must comply with.

Appendix B presents a set of hypothetical scenarios that highlight why an efficient and effective mission authorization framework is needed for in-space activities, by demonstrating real-world implications for the commercial space industry, U.S. national security, and international obligations under the Outer Space Treaty. These examples will allow stakeholders to better understand the urgency of implementing the recommended regulatory framework.

Establishing a clear, efficient, and effective regulatory regime will benefit the commercial space industry and the nation. Specifically, a predictable, transparent regime that encourages innovation and continuous development will help to facilitate investment in new, dynamic space operations by making potential hurdles more readily understood by a diverse set of providers. Such a regime could help to reassure insurers, resulting in space companies gaining access to necessary coverage and reasonable rates. Moreover, establishing a commonsense regulatory regime to address this uncertainty would serve as a prophylactic against policymakers overreacting to a conjunction or other negative event(s) in space, as has occurred previously in the export control regime following the Space Systems Loral incident in 1996.[2] In addition to stiff penalties and costs associated with upgrading its export compliance program, the federal government forced Loral and other companies to provide access to their export systems. The resulting policy reaction from Congress was swift and harsh. Specifically, in 1999 the National Defense Authorization Act moved essentially all satellite products from Export Administration Regulations (EAR) control to International Traffic in Arms Regulations (ITAR) auspices. This remained the case until export control reformers were able to remove some commercial satellite technology from ITAR in 2013, a process that is still underway today.[3] Finally, a constructive regime would prevent other countries from taking advantage of a poor and/or unclear regulatory structure to convince U.S. companies to relocate or use their nations for flags of convenience.

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1 *These activities are also referred to as new and novel missions (defined as missions not currently explicitly regulated under existing statutory regimes).*

2 *Known colloquially as the Space Systems Loral incident, on 14 February 1996, a three-stage Long March 3B rocket lifted off from China's Xichang Satellite Launching Center. Before clearing the launch tower, the rocket tipped over and continued on a flight trajectory roughly parallel to the ground on a collision course with a nearby village. According to official PRC reports, six people died, but other estimates cite a death toll as high as 100. On 9 January 2002, the Justice Department completed its investigation into Loral Space & Communications Corp.'s transfer of missile guidance technology to China, which was done as part of the accident investigation. (Source: SpaceflightNow - January 2013, spaceflightnow.com/news/n1301/03exportcontrol).*

3 *https://spacenews.com/space-export-reforms-to-march-forward-amid-transition-to-new-administration/*

III. History and Current Status

Originally passed in 1984, the Commercial Space Launch Act granted DOT regulatory oversight of commercial spaceflight, indemnifying companies for large third-party damages and informing regulations for commercial human spaceflight. Formal work on an updated mission authorization concept began with the U.S. Commercial Space Launch Competitiveness Act (CSLCA), which became law on 11 November 2015. Section 108 of the CSLCA directed the Office of Science and Technology Policy (OSTP) to assess the current authorization and supervision framework and provide recommendations to Congress within 120 days. On 16 April 2016, John Holdren, then director of OSTP, submitted the Obama administration's official response, which was a proposal for creating a mission authorization framework, modeled on the FAA's existing Payload Review Process and intended to be a light touch approach instead of a comprehensive regulatory framework. The legislative proposal attached to Holdren's letter proposed that DOT be given the authority for mission authorization, which was also the agency leading the Obama administration's interagency work on space traffic management (STM).

However, implementation of this approach was not completed before the end of the Obama administration and the 114th Congress, leaving the matter in the hands of the incoming Trump administration. While the Trump administration largely maintained much of the substance already developed by the Obama administration, they did switch the lead agency for STM from DOT to DOC in Space Policy Directive 3, issued on 18 June 2018. The National Space Policy released by the Trump administration on 9 December 2020, also stated that DOC should take the lead in implementing mission authorization of novel space activities. Once again, the new authorities contained in these policies were not enacted by Congress before the end of the Trump administration's term and the 116th Congress in 2020.

The Biden administration picked up this issue in March 2022, when Vice President Kamala Harris tasked the National Space Council with developing a proposal for authorization and supervision of novel space activities. Before the Biden administration could release their official proposal, Republicans in the House of Representatives introduced the Commercial Space Act of 2023 on 1 November 2023, which proposed DOC taking on a very narrow set of authorities to issue "certifications for the operation of a space object." The Biden administration released their legislative proposal two weeks later, which proposed to split mission authorization between the DOT and the DOC, followed by a policy framework to support the legislative proposal on December 20, 2023. The split reflected months of interagency discussions and the respective agencies' views on how their existing authorities and expertise should translate to mission authorization.

The White House proposal to split authorization between Transportation and Commerce was publicly and explicitly opposed by the Commercial Space Federation (CSF), which represents many of the companies with the greatest interest in the issue. CSF provided the following concerns with the administration's proposal:

- Rather than solving the core challenge of determining which agency will be charged with mission authorization, the proposal split responsibility in an opaque and confusing manner – as evidenced even by confusion among agency officials at the administration's briefing of its proposal.
- The proposal provided the FAA's Office of Commercial Transportation (AST) substantial new responsibilities despite AST being unable to complete current responsibilities (e.g., launch and reentry applications) in a timely manner.

CSF argued FAA AST's existing problems required resolution before it could be granted any new authorities and that a light touch regime implemented by the DOC could be implemented much more quickly, and effectively.

As of September 2024, this issue of how to authorize and supervise novel space activities remains unresolved. The competing proposals from the White House and House of Representatives are fundamentally at odds, and neither appears to have a path forward. The National Space Council Users' Advisory Group and prominent industry groups have criticized the White House proposal's split between the DOC and DOT. No alternative legislation has been officially proposed in the Senate at the time of publication of this writing, although a draft bill has garnered largely positive feedback from the community as it aligns with the House recommendation to make DOC the lead agency for the mission authorization process, but also provides a broader set of authorities DOC would be able to execute in its oversight role.

IV. What Should an Efficient and Effective Mission Authorization Regime Include

While not an exhaustive list, an efficient and effective mission authorization regime should, at a minimum, include the following:

1) **Presumption of Approval:** The mission authorization regime should adopt the American justice system's legal principal of presumption of innocence. The regulator's presumption should be that a proposed commercial space activity will be allowed unless a substantive rationale for rejection of an application can be identified. Such a presumption is vital to ensure that the regulatory process supports commercial space innovation and development, which is vital to the American economy, competitiveness, and national security.

2) **Firm Deadlines:** The mission authorization process should utilize firm deadlines to ensure that applicants receive responses in a timely manner that supports the speed of business and innovation. If a deadline is not met by the regulator, an application should be presumed approved.

3) **Self-Certification / Continuing Supervision:** It will be very difficult, if not impossible, for the U.S. government to effectively monitor many commercial space activities and, unlike traditional government space programs, companies will have a better understanding of their operations than regulators. Therefore, mission authorization approval letters should include a proviso that if there is a substantive change from the applicant's proposed operations, they will inform the U.S. government which can then act accordingly. This self-certification process, which is already successfully being used via the U.S. government's export control regime (e.g., Technical Assistance Agreements traditionally include such provisos) will meet the Outer Space Treaty's requirement for continuing supervision in a constructive manner that maintains safety without overly burdening industry.

4) **Transparency:** Key to ensuring that the mission authorization framework is efficient and effective is a transparent process. By contrast, the FAA's implementation of their Part 450 regulations has been criticized for its lack of consistency, certainty and transparency,[4] and has resulted in unnecessary delays, confusion from the industry, and counterproductive decisions. Transparency should be woven into the fabric of any mission authorization regime, including the ability of companies to receive classified information if they have properly cleared personnel.

5) **Bounding Policy Requirements:** As described previously, all commercial space activities and operations should be presumed approved unless they violate U.S. law or international obligations. A mission authorization regime should contain constraints on the ability of the Executive Branch to prohibit space activities based on overly broad, vague, and/or mercurial national security or foreign policy interests of individual administrations.

4 *Congress, industry criticize FAA launch licensing regulations - SpaceNews*

V. A Single Lead Agency

Shared regulatory responsibilities among two or more federal agencies have resulted in confusion, conflict, and problems for both the private sector and government. This has already been demonstrated in the export control regulatory process where dueling decisions and lists kept by the Departments of State and Commerce continue to create problematic externalities.[5] Therefore, a single lead agency should be identified to support the Mission Authorization process. The Task Force believes OSC is best suited for this task. Per its name, the Department of Commerce is focused on commerce, as are the activities to be addressed by a U.S. mission authorization regime. Commerce has a growing cadre of experts and increased federal funding[6] to ensure that they can support mission authorization. Commerce is also a neutral entity, already familiar with balancing the interests of a diverse slate of industries. By contrast, the Department of Transportation, particularly the FAA, has struggled to separate the realities of space versus their approach to the aviation sector. Additionally, providing OSC with this authority will ensure that AST remains focused on effectively addressing the rapidly growing[7] launch and reentry industry in an efficient fashion.

Finally, Commerce has a great deal of experience in supporting the interagency process, ensuring that the expertise of the DOT, NASA, the Department of Defense (DOD), the intelligence community, and other departments and agencies are fully engaged. Commerce will act as a front door for the commercial space community, ensuring that applicants don't have to deal with multiple, overlapping agencies and departments. Commerce can harness the expertise of relevant U.S. government entities while still providing a single point of contact for the private sector. Such a process will avoid overly burdening mission authorization applicants, encouraging innovation, bolstering small businesses, and ensuring diverse industrial capacity.

5 *Managed by the State Department, the U.S. Munitions List for defense-related items is administered by the International Traffic in Arms Regulations (ITAR). The Commerce Department oversees the Commercial Control List for dual-use technologies, which is under the Export Administration Regulations (EAR). Overlap occurs when technologies straddle both defense and commercial purposes, creating confusion for businesses trying to comply with export laws. Dueling decisions also increase restrictions on international partnerships and negatively impactive U.S. competitiveness globally. In April 2024, the National Space Council announced State and Commerce would start the process to update space systems on export control lists, potentially moving technologies from ITAR to EAR.*

6 *OSC is seeing an increase in funding as part of its expanding role in managing space-related activities. For fiscal year 2025, the Biden administration has proposed a budget of $75.6 million for the OSC, representing a $10.6 million increase over the previous year; $2 million is specifically proposed for OSC to support mission authorization and supervision activities. Source: FY25 Budget Proposes $75.6M for Office of Space Commerce – Office of Space Commerce.*

7 *The demand for launch licenses in the United States has increased significantly over the past decade, reflecting the rapid growth of the commercial space sector. There were eight licensed launches in 2013 compared to 117 licensed launches in 2023. Similarly, the FAA lists one licensed reentry in 2013 compared to seven licensed reentries in 2023. To hire more staff to keep up with the growing pace of commercial launch and reentry activities that it licenses, the FAA has continued to request additional funds for the AST. For fiscal year 2025, this reflects a 36% increase from the $42 million AST received in the fiscal year 2024 spending bill. Source: FAA requests large funding increase for commercial space office - SpaceNews.*

APPENDIX A:

Outer Space Treaty Provisions

Article VI of the OST states that commercial activities by private entities in countries shall require authorization and continuing supervision by their governments to ensure that their activities are carried out **in conformity with the provisions** set forth in the Treaty.

Relevant provisions set forth in the OST can be summarized as:

- **International Cooperation (Article I):** Outer space activities must be conducted for the benefit and in the interest of all countries, regardless of their level of economic or scientific development. Outer space is free for exploration and use by all states, without discrimination on the basis of economic or scientific development.
- **Non-Appropriation (Article II):** Outer space, including the moon and other celestial bodies, is not subject to national appropriation by any means, such as by claim of sovereignty, use, occupation, or any other means.
- **Peaceful Use of Outer Space (Article IV):** Outer space, including the moon and other celestial bodies, is to be used for exclusively peaceful purposes. This includes a prohibition on placing nuclear weapons or any other kinds of weapons of mass destruction in orbit or on celestial bodies. Military activities are allowed in space as long as they are non-aggressive and do not involve weapons of mass destruction.
- **Assistance to Astronauts and Return of Space Objects (Articles V and VIII):** States are to regard astronauts as envoys of humankind in outer space and must offer assistance in the event of an emergency. Additionally, states must return space objects or their components found outside of their territory to the launching state.
- **Liability for Damage (Article VII):** States bear international responsibility for national space activities and are liable for any damage caused by their space objects to other states or to third-party entities, whether on Earth, in outer space, or to other states' space objects.
- **Registration of Space Objects (Article VIII):** States must register space objects launched into outer space with the United Nations or another appropriate international body to maintain transparency and traceability of space objects.
- **Avoidance of Harmful Contamination (Article IX):** States must conduct their activities in outer space with due regard to the interests of other states and avoid harmful contamination of space, celestial bodies, and the Earth's environment. This also includes a provision to avoid harmful interference with the activities of other states.
- **Notification and Consultation (Article IX):** States must consult with other states before proceeding with potentially harmful space activities. If an activity poses a risk of harmful interference with the activities of another state, they are required to engage in consultations.

VI. APPENDIX B:

Mission Authorization Scenarios

The following hypothetical scenarios reinforce the recommendations provided, offer a practical perspective on why immediate action is needed, and illustrate the potential negative consequences that may result from the absence of a clear, efficient, and effective mission authorization regime. Each scenario is designed to highlight specific risks and challenges that could impact the commercial space industry, international relations, and compliance with the Outer Space Treaty. The scenarios also highlight three overarching benefits afforded by the proposed mission authorization regime: enabling a variety of commercial space activities that already are taking place or may occur in the future; rapid return-to-flight in the case of incidents; and, transparency and confidence-building, both in domestic and international settings.

A. New and Emerging Space Activities Not Explicitly Contemplated by the Outer Space Treaty

These scenarios involve commercial space activities that were not explicitly anticipated when the Outer Space Treaty (OST) was drafted. A predictable and transparent regulatory regime can boost investment in these new activities while preventing other countries from exploiting a weak or unclear framework to persuade U.S. companies to relocate or operate under foreign flags of convenience.

1. Novel, Continuous Operations in Multiple Orbits (2026)

A U.S.-based space company intends to offer on-orbit mobility and hosting solutions using a new platform that can move around and among orbital regimes. This platform can service multiple providers at a time, including those from national security, civil, and commercial domestic and international markets. For one planned flight, the vehicle will separate from its launch vehicle, complete a geosynchronous transfer orbit (GTO) to geosynchronous orbit (GEO) transfer, and drop multiple customers in more than one GEO slot to continue operations. It will then park in its own GEO slot and continue operating, providing hosted payload solutions including telemetry, tracking, and command (TT&C) as well as communications relay and on-orbit processing for several remaining customers. In its last year of life, it will be redeployed to a final GEO slot to refuel a customer satellite with its remaining hydrazine before entering a disposal orbit.

Impact Without Recommended Mission Authorization Regime in Place

- **Multiple original and continuing regulators with unclear oversight areas:** A variable mission as described above requires a significant amount of coordination between the launch operator, space vehicle operator, payload owner/operators, the U.S. government, and other state actors. Without a lead agency overseeing the mission authorization regime, the U.S. operator is left to coordinate an unclear interagency approval process. With conflicting information provided by multiple agencies, the mission is delayed and quickly eats into the financial health of the company. The mix-and-match approach to mission approval provides no clear precedent for similar missions in the future, stifling U.S. competitiveness in on-orbit activities.

- **Possible Diplomatic Fallout:** This on-orbit mobility vehicle, which does not follow the current concept of operations for other space capabilities, causes alarm in the international community.

Impact with the Recommended Mission Authorization Regime

A single lead agency for mission authorization provides a one-stop-shop for this company's on-orbit mobility and hosting solutions, also providing a presumption of approval. This paves the way for a self-certification process that ensures the U.S. regulatory process supports continued commercial space innovation and normalizes spacecraft performing multiple roles over their lifetimes (e.g., space stations, lunar transporters, deep space shuttles, refueling hardware) without unnecessary scrutiny, mission delays, and increased mission authorization costs. Real-time insight into mission changes also promotes transparency amid allies and adversaries alike, reducing possible security incidents.

2. Later-In-Life Orbital Assembly (2029)

In 2025, two companies independently launch components of a spacecraft from different nations. Company A launches from the United States, and Company B launches from Europe. Both companies file their launch licenses with their respective governments, describing the components as individual modules with specific, limited capabilities, based on the business models of those companies in 2025. However, after a few years on orbit, the two companies identify a new potential opportunity that can be realized by connecting their modules. This new complete spacecraft is capable of conducting complex and potentially sensitive missions not disclosed in their original license applications.

Impact Without Recommended Mission Authorization Regime in Place

- **Regulatory Uncertainty:** Without a clear way to update licenses for unforeseen operations, this possibly lucrative and useful mission may not come to fruition. Alternatively, it takes place in a manner that blindsides U.S. regulators.
- **Legal and Diplomatic Repercussions:** Other nations notice the change in the spacecrafts' activity, raising concerns about a violation of international space law.
- **Increased Regulatory Scrutiny:** In response to the spacecrafts' connection and misunderstanding of it, U.S. and European governments impose stricter regulations on space activities, particularly concerning multicomponent missions and in-orbit assembly. There are time-intensive requirements imposed on companies for more detailed mission disclosures as well as costly monitoring of their space activities.
- **Industry Consequences:** The incident leads to a chilling effect on innovative space missions, as companies become wary of stricter regulations, penalties, and the higher costs associated with licensing and regulatory oversight.

Impact with Recommended Mission Authorization Regime in Place

The mission authorization regime proposed ensures that multi-component missions, like orbital assembly, can be effectively monitored. Self-certification would mandate that companies report changes to their mission operations, providing real-time regulatory oversight. By ensuring that companies can quickly and easily convey changes in plans to a single point of contact, American innovation and competitiveness is advanced rather than stifled. This also prevents undisclosed assembly of spacecraft, maintaining compliance with international law and preventing legal and diplomatic disputes. However, it could also prompt a closer collaboration between governments and private companies to ensure that future space missions are transparent, safe, and compliant with all regulations.

3. Commercial Space Station Microgravity Activities (2028)

An American entrepreneurial firm is seeking funding for an innovative microgravity R&D activity to be conducted on a commercial space station. The company struggles to gather prospective signoffs from all potentially relevant agencies, which include the DOT, DOC, Department of Energy (DOE), NASA, and DOD.

Impact Without Recommended Mission Authorization Regime in Place

- **U.S. Innovation Hampered:** The U.S. company is unable to obtain funding when failing to satisfactorily answer questions from investors and insurers about the regulatory regime for its activities. The absence of a unified mission authorization regime leaves investors and insurers uncertain about the regulatory landscape, discouraging investment in U.S. space ventures. This hesitation ultimately stifles innovation and slows down the commercialization of space activities.
- **Geopolitical Implications:** As U.S. firms face delays and uncertainties, competitors—particularly from China—are able to act more swiftly. China conducts a similar activity on their space station and the new discovery bolsters the Chinese economy, also enabling adversaries to dominate critical sectors of the space and terrestrial economies. This diminishes U.S. influence in setting international space norms and standards, allowing adversaries to shape the regulatory and competitive landscape.

Impact with Recommended Mission Authorization Regime in Place

With the recommended mission authorization regime in place, U.S. companies engaging in new and emerging space activities benefit from a streamlined approval process managed by a single agency, eliminating the delays and confusion caused by navigating multiple U.S. government agencies. This predictable and transparent regulatory framework boosts investor and insurer confidence, making it easier for companies to secure funding and drive innovation. The presumption of approval and firm deadlines allows American entrepreneurial firms to stay competitive, preventing foreign rivals, like China, from gaining an economic or technological edge. Additionally, by maintaining leadership in space innovation, the U.S. strengthens its global influence in setting international space norms, countering potential geopolitical advantages of adversaries.

B. Rapid Return to Flight Through Continuing Oversight

1. Private Astronaut Mission Extravehicular Activity (EVA) Incident (2025)

In 2025, a company launches a private astronaut mission in LEO that includes a full extravehicular activity (EVA) as part of their contracted mission. This EVA, a significant milestone in commercial spaceflight, is intended to demonstrate the capabilities of private astronauts to perform complex tasks in space. However, during the EVA, one of the astronauts experiences a life-threatening malfunction in their suit's life support system. The situation quickly escalates as mission control struggles to bring the astronaut back inside the spacecraft. The incident generates widespread media coverage and public concern about the safety of commercial spaceflight.

Impact Without Recommended Mission Authorization Regime in Place

- **U.S. Government Oversight Confusion: I**n response to the incident, multiple agencies demand insight and oversight into the follow-on investigations. All commercial spaceflight companies now face increased scrutiny, insurance premiums for space increase, and the ability to progress quickly through the investigative process is stalled by uncertainty over oversight authorities.

- **Conflicting Regulatory Action:** Multiple U.S. regulatory bodies propose draconian requirements for EVAs without clear authority to do so, leading to conflicting guidance, while also slowing down the pace of commercial space missions.

Impact with Recommended Mission Authorization Regime in Place

Under the mission authorization regime proposed, the coordination of information to U.S. government agencies seeking insight into the incident is straightforward. Regulatory reaction, if appropriate, is limited to a single source with this visibility. Follow-on activities continue to benefit from the presumption of approval while firm deadlines prevent unnecessary delays for future missions and lengthy regulatory pauses. Private companies continue to adhere to self-certification and continuing supervision requirements. In so doing, instead of sudden harsh regulations that slow down commercial spaceflight, the recommended framework supports maintaining a favorable environment for innovation and investment in private space missions.

C. Mission Authorization in an International Context: Transparency and Confidence Building

In the increasingly interconnected realm of space exploration, U.S. commercial space activities have significant international implications. The recommended mission authorization framework plays a critical role in ensuring that these activities comply with international obligations, while fostering innovation and maintaining U.S. leadership in space.

1. Exclusive Claim on Lunar Resources (2032)

By 2032, a U.S. mining company establishes a base on the moon and begins extracting resources, including helium-3 and water ice. The company sets up operations in a large area. The company restricts access to this area, preventing other international partners and commercial ventures from entering or conducting their own operations.

Impact Without Recommended Mission Authorization Regime in Place

- **International Tension:** The company's actions trigger significant international backlash, as other nations view the claim as a violation of their rights to explore and use the moon under their interpretation of the OST.

- **Economic Consequences:** The restriction of access to key lunar resources by a single entity disrupts the emerging lunar economy, leading to disputes over resource access and usage.

- **Legal and Diplomatic Fallout:** The scenario leads to a series of legal challenges and diplomatic conflicts, with other countries demanding that the U.S. government revoke the company's claim and ensure compliance with international law.

Impact with Recommended Mission Authorization Regime in Place
The recommended mission authorization framework's emphasis on transparency ensures that the U.S. government meets international treaty obligations and supports the American space economy. By engaging companies in a predictable and clear regulatory environment, with one lead agency as the front door for mission authorization, the U.S. government works with this company, Artemis Accords signatories, and the international community to communicate mission plans and exercise the principle of due regard. This aligns with the principles of the Artemis Accords, which promote peaceful exploration and use of space resources, while respecting safety zones that protect operations without creating illegitimate keep-out zones or asserting sovereignty. The mission authorization framework helps advance NASA's goal to collect lunar resources by commercial companies and builds U.S. in-situ resource utilization (ISRU) capabilities, encouraging innovation while ensuring operations are conducted responsibly and in compliance with the OST.

D. Conclusion

These scenarios demonstrate the wide-ranging implications caused by a lack of regulatory clarity for commercial space activities. They emphasize the urgent need for the implementation of a mission authorization regime with the characteristics outlined in the main document, particularly a presumption of approval, firm deadlines, self-certification mechanisms, transparency, and bounded policy requirements. By addressing these issues proactively, we can foster a safe, innovative, and competitive American commercial space environment.