

Don't Mind the Gap: Practical and Ethical Consequences of Domestic Planetary Protection Regulations

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INTRODUCTION

Planetary protection impacts every human being on the planet. Yet, this practice is often left out of conversations regarding the development of commercial space regulations. While government-affiliated missions operate under updated planetary protection policies, domestic regulations governing corporations and non-governmental organizations have struggled to keep up with the growing private sector. The current “regulatory gap” guarantees that the United States is unable to fulfill its international obligations under the Outer Space Treaty (OST) and highlights limitations in the Federal Aviation Administration (FAA) licensing framework. While different initiatives may signal an eventual end to the problem, no long-term solutions to “fill” the current regulatory gap are being meaningfully undertaken.

Closing the regulatory gap also aids practitioners in ethically counseling clients about disclosure of planetary protection concerns. From navigating the FAA’s licensing process to exigency scenarios, clients in the commercial space industry would benefit from regulations prohibiting harmful contamination of the Earth and other celestial bodies. This Note aims to give practitioners guidance in the meantime by conveying a simple message: “don’t mind the gap” — abide by the *Model Rules of Professional Conduct* (*Model Rules*) despite regulatory limitations. This guidance encourages attorneys to exercise their conscience and discretion should they become aware of planetary protection concerns.

Part I of this Note gives background on planetary protection and the domestic commercial space industry. Part II explains the current regulatory framework governing the industry and the domestic regulatory gap. Part III surveys proposed solutions to the regulatory gap. Part IV imparts advice to practitioners, exploring two scenarios where they may confront planetary protection concerns and examining possible grounds for discipline under the *Model Rules*.

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I. PLANETARY PROTECTION AND THE COMMERCIAL SPACE INDUSTRY

“Planetary [p]rotection is the practice of protecting solar system bodies from contamination by [life on Earth] and protecting Earth from possible life forms that may be returned from other solar system bodies.”¹ The United States has an international obligation to prevent biological contamination of the Earth or other celestial bodies, otherwise referred to as forward and backward contamination.²

While these principles are not often talked about, the dangers of forward and backward contamination have existential consequences for both the future of space exploration and life on Earth.³ Forward contamination refers to an entity originating from Earth contaminating the Moon or another celestial body.⁴ The introduction of terrestrial material into extraterrestrial environments can hinder the accuracy of research obtained from space exploration.⁵ Even more troubling are the consequences of backwards contamination, where an entity originating from Earth brings material back from space that may have an adverse effect on the Earth’s environment.⁶

In the past two decades, the United States has increasingly moved away from a centralized, government-directed human space activity model in favor of public initiatives promoting the private space industry.⁷ Coupled with technological advances such as the lowered cost of launches, this shift has contributed to the industry’s substantial growth during the past five years.⁸ As of the second quarter of 2020, the global space economy’s valuation totaled \$447 billion with commercial space products and services making up approximately 80 percent of that figure.⁹ This shift in U.S. policy has also led commercial space companies to diversify the services and products they offer to governments and private customers. From space tourism to private space research and exploration, private businesses wishing to occupy the field have not only increasingly partnered with

1. Nat’l Aeronautics & Space Admin., *Planetary Protection*, <https://sma.nasa.gov/sma-disciplines/planetary-protection> [perma.cc/2B5J-HN2U] (last visited Dec. 18, 2021).

2. Ker Than, *How do we protect planets from biological cross-contamination?*, STANFORD ENG’G (May 11, 2020), <https://engineering.stanford.edu/magazine/article/how-do-we-protect-planets-biological-cross-contamination> [perma.cc/3SFU-R2TK].

3. See Victoria Sutton, *Planetary Protection and Regulating Human Health: A Risk that is Not Zero*, 19 HOUS. J. HEALTH L. & POLICY 71, 77-78 (2019).

4. *Id.* at 82.

5. NAT’L SPACE COUNCIL, NAT’L STRATEGY FOR PLANETARY PROTECTION 2 (Dec. 2020).

6. *Id.*

7. See Mark Weinzierl and Mehak Sarang, *The Commercial Space Age Is Here*, HARV. BUS. REV. DIGITAL ARCHIVES (Feb. 12, 2021), <https://hbr.org/2021/02/the-commercial-space-age-is-here> [perma.cc/AR3L-KQAS].

8. See Alexander Salter, *Space Is No Longer Government’s Exclusive Domain*, WALL ST. J. (Oct 19, 2021), <https://www.wsj.com/articles/outer-space-government-business-shatner-property-rights-exploration-11634596203> [perma.cc/57N8-J2NA].

9. Space Foundation, *Global Space Economy Rose to \$447B in 2020, Continuing Five-Year Growth*, <https://www.spacefoundation.org/2021/07/15/global-space-economy-rose-to-447b-in-2020-continuing-five-year-growth/> [perma.cc/8KFP-9FSK] (last visited Dec. 18, 2021).

governments to deliver payloads but also have increased efforts to create their own emergent market segments of space-to-Earth and space-to-space products and services.¹⁰

II. DOMESTIC SPACE REGULATIONS AND THE “REGULATORY GAP”

Domestic regulations governing private actors have struggled to keep pace with the growing private sector.¹¹ This is especially true in the realm of planetary protection. While planetary protection principles and specific regulations are often implemented for government-affiliated missions, these have not been codified or sufficiently enforced for the increasing number of commercial space missions.¹²

The United States first adopted planetary protection principles for the National Aeronautics and Space Administration (NASA) in 1963, prior to the ratification of the OST.¹³ The OST was ratified in 1967, establishing the U.S. international obligation to uphold those principles.¹⁴ Article 9 of the OST begins with the peremptory idea that space exploration must “be guided by the principle of cooperation and mutual assistance and [requires that State Parties to the Treaty] conduct all their activities in outer space . . . with due regard to the corresponding interests of all other State Parties to the Treaty.”¹⁵ As such, Article 9 states that State Parties to the Treaty shall “conduct exploration of [the Moon and other celestial bodies] to avoid their harmful contamination and . . . where necessary . . . adopt appropriate measures for this purpose.”¹⁶

This imposition of responsibility is not limited to governmental actions. Article 6 of the OST imposes “international responsibility for national activities in outer space” when State Parties violate the OST’s provisions regardless of “whether such activities are carried on by governmental agencies [or commercial

10. George Profitiotis & Maria Loizidou, *Planetary Protection Issues of Private Endeavors in Research, Exploration, and Human Access to Space: An Environmental Economics Approach to Forward Contamination*, 63 *ADVANCES IN SPACE RESEARCH* 598, 599 (October 2018).

11. See U.S. Gov’t. Accountability Off., GAO-21-105268, *FAA Continues to Update Regulations and Faces Challenges to Overseeing an Evolving Industry* 10–12 (June 2021), <https://www.gao.gov/assets/720/715062.pdf> [perma.cc/2XVM-MV8D]; see also Joey Roulette, *Elon Musk’s SpaceX Violated its Launch License in Explosive Starship Test, Triggering an FAA Probe*, *THE VERGE* (Jan 29, 2021), <https://www.theverge.com/2021/1/29/22256657/spacex-launch-violation-explosive-starship-faa-investigation-elon-musk> [perma.cc/HTE8-DPFX].

12. See Paola Rosa-Aquino, *Humans Are On Track to Export Our Environmental Problems to Space*, *WIRED* (Nov. 18, 2021), <https://www.wired.com/story/space-law-debris-pollution-business/> [perma.cc/D64F-QWC3].

13. NAT’L ACADEMIES OF SCIENCES, ENG’G, MED., THE GOALS, RATIONALES, AND DEFINITION OF PLANETARY PROTECTION INTERIM REPORT 2 (2017).

14. U.S. Dep’t of State, *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies*, <https://2009-2017.state.gov/t/isn/5181.htm> [perma.cc/96SR-N3Z4] (last visited Dec. 18, 2021).

15. Outer Space Treaty art. 9, Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205.

16. *Id.*

space actors].”¹⁷ This Article also indicates the United States has an ongoing obligation to “authori[ze] and continu[ally] supervis[e]” private activities in space.¹⁸

The United States has many agencies that oversee space exploration but, due to the existing “regulatory gap,” no agency has sufficient authority to uphold the nation’s obligations under the OST.¹⁹ To better understand this controversy, it is necessary to explore how various government agencies oversee different sectors of domestic space policy and how recent efforts by Congress have attempted to give the Department of Commerce (DOC) greater control of the private sector.

Within the Department of Transportation (DOT), the FAA’s Office of Commercial Space Transportation (AST) has a dual mandate to regulate the space industry as well as to promote, encourage and facilitate the industry’s growth.²⁰ In 1984, Congress passed the Commercial Space Launch Act, which established AST within the DOT and granted the office its licensing authority of launch vehicles and launch sites.²¹ That authority has incrementally expanded to include regulatory regimes addressing reusable launch vehicle licensing, private human spaceflight, and resource utilization.²²

The AST’s regulatory jurisdiction now includes the operation of a launch or reentry site and all launch and reentry missions conducted in the United States²³ as well as the operation of a launch or reentry site and launch and reentry missions conducted outside the United States by a U.S. citizen.²⁴ However, the AST’s jurisdiction is limited to regulating space launch and reentry, meaning that the AST lacks statutory authority to regulate activities in orbit.²⁵

Within the DOC, the National Oceanic and Atmospheric Administration (NOAA) and the National Environmental Satellite, Data, and Information Service (NESDIS) also regulate commercial space. NESDIS’s Office of Space Commerce (OSC) and Commercial Remote Sensing Regulatory Affairs office (CRSRA) work to promote the U.S. space industry, regulate private remote sensing activities and licensing, and utilize space assets for weather prediction and gathering environmental science data. OSC works to promote the industry and integrate space policy for the private sector²⁶ while CRSRA oversees remote

17. Outer Space Treaty art. 6.

18. *Id.*

19. NAT’L ACADEMIES OF SCIENCES, ENG’G, MED., REVIEW AND ASSESSMENT OF PLANETARY PROTECTION POLICY DEVELOPMENT PROCESSES 87 (2018) [hereinafter PLANETARY PROTECTION POLICY ASSESSMENT].

20. *See* Commercial Space Launch Act of 1984, Pub. L. No. 98–575 Oct. 30, 1984, 98 Stat 3055 § 2; 51 USC § 50903(b).

21. 51 USC §§ 50901-50923.

22. *See* Pub. L. No. 105–303, Oct. 28, 1998, 112 Stat. 2843; Pub. L. No. 108–492, Dec. 23, 2004, 118 Stat. 3974; Pub. L. No. 114–90, Nov. 25, 2015, 129 Stat. 704.

23. 51 U.S.C. § 50904(a)(1).

24. 51 U.S.C. § 50904(a)(2); 51 U.S.C. §§ 50902(1)(A)-(C) (defining “citizen of the United States”).

25. Pub. L. No. 108–492.

26. Off. of Space Com., *Mission Statement*, <https://www.space.commerce.gov/about/mission> [perma.cc/E3ZY-VJ75] (last visited Dec. 18, 2021).

sensing licensing, compliance, and monitoring.²⁷

NASA is a civil research and development agency—as opposed to a regulatory agency—that assists in advising and operating government-associated missions to space.²⁸ While NASA cannot authorize or continually supervise private-sector space activities, the office develops regulations for governmental missions and advises executive agencies when prompted.²⁹ Influenced partly by the Committee on Space Research's (COSPAR) continually updated policy suggestions on regulations regarding planetary protection,³⁰ NASA has developed Interim Directives (NIDs) with specific planetary protection policies for robotic and human missions to the Earth's moon and future human missions to Mars.³¹

While NASA policies may satisfy the U.S. obligation to prevent forward and backward contamination for government-affiliated space activities, Congress has yet to vest power in any regulatory agency to ensure the private sector also abides by the OST's terms.³² The domestic “regulatory gap” refers to the nation's current inability to abide by Article 6 of the OST. In other words, the U.S. cannot adequately “authoriz[e] and continu[ally] supervis[e]” in-flight space exploration by nongovernmental entities under the current regulatory framework.³³

Recent history suggests that the OSC is gaining increased regulatory control of private-sector activities. In 2018, President Donald Trump signed into effect Space Policy Directive-3 (SPD-3), which directed the OSC to maintain space situational awareness data and provide collision avoidance support.³⁴ Prior to SPD-3's enactment, the House of Representatives introduced legislation that would have expanded the OSC's authority even further.³⁵ If enacted, the American Space Commerce Free Enterprise Act (hereinafter “the Act”) would grant the OSC authority to supervise U.S. private-sector space endeavors, ensuring that regulatory limitations on nongovernmental entities are minimized as much as

27. Nat'l Env't Satellite, Data, and Info. Serv., *Commercial Remote Sensing Regulatory Affairs*, <https://www.nesdis.noaa.gov/about/our-offices/commercial-remote-sensing-regulatory-affairs> [perma.cc/49LF-RLXF] (last visited Mar. 9, 2022); 15 CFR § 960 (2020).

28. Fed. Aviation Admin., *Frequently Asked Questions*, https://www.faa.gov/space/additional_information/faq/ [perma.cc/D4AU-GTXV] (last visited Nov. 21, 2021).

29. See PLANETARY PROTECTION POLICY ASSESSMENT, *supra* note 19, at 87.

30. Thomas Cheney et al., *Planetary Protection in the New Space Era: Science and Governance*, 7 FRONTIERS IN ASTRONOMY AND SPACE SCIENCES 1 (Nov. 13, 2020), <https://www.frontiersin.org/articles/10.3389/fspas.2020.589817/full> [perma.cc/5AL6-VLEX].

31. Nat'l Oceanic and Atmospheric Admin., *NASA Updates Planetary Protection Policies for Robotic and Human Missions to Earth's Moon and Future Human Missions to Mars* (Jul. 9, 2020), <https://www.nasa.gov/feature/nasa-updates-planetary-protection-policies-for-robotic-and-human-missions-to-earth-s-moon> [perma.cc/SDM7-YK8E]; see NID 8715.128; NID 8715.129.

32. PLANETARY PROTECTION POLICY ASSESSMENT, *supra* note 19, at 41.

33. See *id.* at 5; Outer Space Treaty art. 6.

34. Jeff Foust, *Report Endorses Giving Commerce Department Responsibility for Space Traffic Management*, SPACE NEWS (Aug. 20, 2020) <https://spacenews.com/report-endorses-giving-commerce-department-responsibility-for-space-traffic-management/> [perma.cc/JS2C-FSPS]; Space Policy Directive-3, National Space Traffic Management Policy, 83 Fed. Reg. 28969 (June 21, 2018).

35. H.R. 2809, 115th Cong. (2018).

possible.³⁶ The Act would seemingly replace existing AST licensing regulations in favor of an OSC certification system.³⁷

Critics of the Act contend that facets of the legislation, such as the idea that private entities have “the right to undertake space activities without limitations and that outer space is not a global commons,” conflict with U.S. obligations under the OST.³⁸ After the Act passed the House in 2018, the Senate referred it to the Committee on Commerce, Science, and Transportation.³⁹ As of this writing, however, there has been no further action.⁴⁰

Another critique of the Act is that transferring authority to the OSC fails to address the underlying FAA licensing framework’s regulatory gap. The FAA conducts payload reviews as part of its licensing process; theoretically, this stage of review could grant the FAA broad authority to prevent forward and backwards contamination.⁴¹ However, FAA payload review is limited to addressing whether “reentry presents any issues that would adversely affect U.S. national security or foreign policy interests, would jeopardize public health and safety or the safety of property, or would not be consistent with international obligations of the United States.”⁴² FAA’s payload review *allows*, but does not *require*, the FAA consult with NASA to address whether a proposed mission will adversely affect one of these interests.⁴³ While one might assume planetary protection under Articles 9 and 6 of the OST might fall under “internal obligations of the United States,” no explicit legislative or executive guidance states that reentry licensing authority includes forward or backward contamination considerations. As a result, the FAA is not compelled to consult NASA regarding planetary protection concerns unless the FAA identifies a concern during licensing.⁴⁴

Perhaps the current framework’s most problematic element is that the FAA must ascertain whether a proposed licensee’s actions present planetary protection issues without having the necessary expertise to identify these problems.⁴⁵ In

36. *Id.*

37. *Id.* at §3.

38. *Id.* at §2; See Liu Hao & Fabio Tronchetti, *The American Space Commerce Free Enterprise Act of 2017: The Latest Step in Regulating the Space Resources Utilization Industry or Something More?*, 47 SPACE POL’Y 1, 5 (Mar. 11, 2018).

39. Congress, *H.R.2809 Bill Overview*, <https://www.congress.gov/bill/115th-congress/house-bill/2809> [perma.cc/CYP2-SMGJ] (last visited Dec. 17, 2021).

40. *Id.*

41. Fed. Aviation Admin., *Payload Reviews*, https://www.faa.gov/space/licenses/payload_reviews/ [perma.cc/UR5N-QYA8] (last visited Dec. 18, 2021); 14 CFR § 415.57.

42. 14 C.F.R. § 431.55(a) (2022).

43. 14 C.F.R. § 431.55(c) (2022).

44. See PLANETARY PROTECTION POLICY ASSESSMENT, *supra* note 19, at 70; see also NAT’L ACADEMIES OF SCIENCES, ENG’G, MED., ASSESSMENT OF THE REPORT OF NASA’S PLANETARY PROTECTION INDEPENDENT REVIEW BOARD 19 (2020) [hereinafter Assessment of PPIRB REPORT].

45. U.S. Govt. Accountability Off., GAO-07-16, *FAA Needs Continued Planning and Monitoring to Oversee the Safety of the Emerging Space Tourism Industry* (Oct. 2006), <https://www.gao.gov/assets/a252815.html> [perma.cc/823U-RW8U].

addition, because the AST's jurisdiction is limited to launch and reentry, the office lacks authority to review or approve post-launch mission operations or activities on or around another planetary body.⁴⁶

Not surprisingly, the licensing scheme's limitations have allowed FAA licensed entities to contaminate space. In 2019, Space IL, an Israeli non-profit, launched a small robotic lander and lunar probe to the Moon's surface. Unbeknownst to the FAA or Space IL, one payload on the lander contained 30 million purposely added microscopic organisms known as tardigrades.⁴⁷ While new research shows that the tardigrades likely did not survive the journey due to the lander's unexpected crash landing, introducing millions of terrestrial organisms into an extraterrestrial environment sets a dangerous precedent for future forward contamination.⁴⁸ Although this incident prompted the NASA Planetary Protection Independent Review Board (PPIRB) to recommend that breaches in planetary protection reporting should be met with sanctions, the PPIRB concedes "that a payload license would have been readily granted had the [tardigrades] been self-reported."⁴⁹

In 2018, SpaceX's Falcon Heavy rocket launched from Kennedy Space Center carrying a modified Tesla Roadster and mannequin known as "Starman."⁵⁰ Touted in SpaceX's license as a "mass simulator," the Roadster and Starman were sent to a hyperbolic orbit, marking the first time a private-sector company had launched a payload beyond geostationary orbit.⁵¹ However, publicly available records do not reveal what planetary protection protocols, if any, were represented by SpaceX in its original licensing application or through the FAA's amendments to their license.⁵² In fact, NASA's planetary protection officer at the time indicated that the agency's role in planetary protection for the mission "was little or nothing," explaining that the mission did not have a planetary protection

46. Pub. L. No. 108-492; See PLANETARY PROTECTION POLICY ASSESSMENT, *supra* note 19, at 70.

47. Chris Taylor, 'I'm the first space pirate!' How Tardigrades Were Secretly Smuggled to the Moon, MASHABLE (Aug. 8, 2019), <https://mashable.com/article/smuggled-moon-tardigrade> [perma.cc/5RXZ-LCN5].

48. Jonathan O'Callaghan, *Hardy Water Bears Survive Bullet Impacts—up to a Point*, SCIENCE (May 18, 2021), <https://www.science.org/content/article/hardy-water-bears-survive-bullet-impacts-point> [perma.cc/UH2H-HJ5X].

49. PLANETARY PROTECTION INDEPENDENT REVIEW BOARD, NASA PLANETARY PROTECTION INDEPENDENT REVIEW BOARD (PPIRB): REPORT TO NASA/SMD – FINAL REPORT 12 (2019) [hereinafter Assessment of PPIRB REPORT].

50. Kenneth Chang, *Falcon Heavy, in a Roar of Thunder, Carries SpaceX's Ambition Into Orbit*, N.Y. TIMES (Feb. 6, 2018), <https://www.nytimes.com/2018/02/06/science/falcon-heavy-spacex-launch.html> [perma.cc/L4GW-5EG5].

51. Dave Mother, *SpaceX has Received Permission from the US Government to Launch Elon Musk's Car Toward Mars*, BUS. INSIDER (Feb. 5, 2018), <https://www.businessinsider.com/falcon-heavy-launch-spacex-elon-musk-tesla-roadster-car-2018-2> [perma.cc/VUH2-KANF].

52. See FAA License No. LLS 18-107. The original license is no longer available on the FAA's website, but other versions are available on third party reference sites. See Space Reference, *FAA License No. LLS 18-107* (Feb 6, 2018), <http://images.spaceref.com/news/2018/LLS18107doc.pdf> [perma.cc/68KW-X4QG].

plan in place.⁵³ While orbital projections show the Tesla may survive over 15 million years in space, the vehicle will eventually collide with either the Earth, our Sun, or another planet in our solar system.⁵⁴ The troubling fate of Starman and the Roadster could be a case of “no harm, no foul”—but considering that the so-called “mass simulator” has no scientific value, the event casts further doubt on the FAA’s ability to address concerns about private-sector planetary protection.⁵⁵

Consider a seemingly benign scenario in which a private-sector space tourism company wishes to fly tourists around the Moon before returning to Earth. People expend a great amount of bio-waste that must be properly stored or expelled. If the mission was affiliated with the U.S. government, the company would have to provide NASA with a list of the “amount and disposition of biological materials, including waste, [that would remain] in the lunar environment.”⁵⁶ Unless otherwise held as an explicit term in the company’s licensing agreement, the FAA’s lack of authority to monitor conduct outside orbit could allow a tourism company to quite literally defecate on the Moon if mission conditions required its spaceship’s biowaste be expelled prior to reentry. Assuming this action was within Article 9’s definition of “harmful contamination,” the private company’s conduct would constitute a violation of the U.S. obligations under Article 6 to continually authorize and supervise “non-governmental entities in outer space.”⁵⁷

The FAA’s limited authority also creates problems with exigency plans. Emergencies will undoubtedly need to be executed while spacecraft are outside of Earth’s orbit. While launching a spaceship may seem like the most dangerous part of a mission, countless scenarios may trigger exigency scenarios during non-governmental missions. Companies will need to make tough decisions regarding the safety of their spaceflight participants and crew outside of the FAA’s jurisdiction. Imagine that mission conditions suggested releasing hazardous material while orbiting the Moon would increase a spacecraft’s chance to successfully achieve reentry. While one could say that protecting the crew would take precedent where the risk of failure is high, two questions remain: (1) what action should be taken when that risk is miniscule and (2) should a decision that endangers crew members be made only to avoid pure economic loss? Currently, such decisions are within the discretion of the private space entity operating the mission.

53. Jeff Foust, *New NASA Planetary Protection Officer Seeks Greater Cooperation With Human and Commercial Missions*, SPACE NEWS (Feb. 26, 2018), <https://spacenews.com/new-nasa-planetary-protection-officer-seeks-greater-cooperation-with-human-and-commercial-missions> [perma.cc/W99F-2NPF].

54. See Hanno Rein, Daniel Tamayo & David Vokrouhlicky, *The Random Walk of Cars and Their Collision Probabilities with Planets*, 57 AEROSPACE 5(2) at 1, 4–5 (Feb. 2018); but see Rafi Letzter, *Radiation Will Tear Elon Musk’s Rocket Car to Bits in a Year*, LIVE SCI. (Feb. 6, 2018), <https://www.livescience.com/61680-will-spacex-roadster-survive-in-space.html> [perma.cc/WSA9-Y84U].

55. See Steven Mirmina, *The Time is Always Right to Do What is Right*, 51 GEO. J. INT’L L. 1, 4 (2019).

56. NID 8715.128, 1.1.4.b.

57. See Outer Space Treaty art. 6, 9; see also Ker Than, *supra* note 2.

III. PROPOSED SOLUTIONS TO THE REGULATORY GAP

There are multiple ways in which the United States can “fill” the current regulatory gap. One solution, promulgated by NASA’s PPIRB, suggests that NASA should play a greater advisory role for regulatory agencies and the private sector.⁵⁸ The PPIRB acknowledged that the private sector’s trepidation in implementing planetary protection stems in part from “a general lack of clarity concerning planetary protection requirements.”⁵⁹ As such, the board recommended that NASA clarify its planetary protection policies for government-affiliated missions and offer greater expertise and tools to emerging actors in planetary exploration.⁶⁰

NASA is not a regulatory agency, so solutions that advocate for a greater advisory role may not prove impactful enough to meet the increasing need to regulate the private sector. Prior to the PPIRB’s formation, the National Academy of Sciences suggested in 2018 that Congress could fill the gap by “promulgating legislation that grants jurisdiction to an appropriate federal regulatory agency to authorize and supervise private-sector space activities that raise planetary protection issues.”⁶¹ The report said this legislation should “ensure that the authority granted be exercised in a way that is based upon the most relevant scientific information and best practices on planetary protection,”⁶² while requiring NASA and COSPAR make “appropriate efforts to take into account the views of the private-sector in the development of planetary protection policy.”⁶³

While ongoing efforts to increase the OSC’s power such as the Act and SPD-3 could signal that office’s eventual control of planetary protection policy, the FAA could also receive this responsibility given the agency’s current authority. For instance, Congress could expand the FAA’s licensing jurisdiction to include activities conducted by non-government affiliated missions outside of Earth’s orbit. Regardless of what agency prevails, this authority should be granted as soon as possible to ensure the prevailing agency can implement planetary protection regulations for the private sector.

Even without congressional intervention, the FAA could circumvent its lack of extra-orbital jurisdiction by requiring applicants to agree to planetary protection regulations as express license terms. This practice may become routine, evidenced by an additional reporting provision included in the reentry license of the SpaceX Dragon 2 capsule.⁶⁴ This requirement states that SpaceX must “provide a

58. See PPIRB REPORT, *supra* note 49, at 10.

59. See ASSESSMENT OF PPIRB REPORT, *supra* note 44 at 17.

60. See *id.*

61. PLANETARY PROTECTION POLICY ASSESSMENT, *supra* note 19, at 88.

62. *Id.*

63. *Id.* at 89.

64. Off. of Com. Space Transp., *License No. RLO 20-007* (Sept. 10, 2021), https://www.faa.gov/about/office_org/headquarters_offices/ast/licenses_permits/media/RLO_20_007_Dragon2_license_N_orders_I4_Mod_2021_09_10.pdf [perma.cc/JS22-B3WV].

summary of anomalies that occur during the mission that could be material to public safety or result in an environmental impact within three weeks of each Dragon reentry.”⁶⁵ Future space tourism launches akin to the SpaceX Inspiration4 mission may limit planetary protection concerns outside of Earth’s orbit through similar reentry licensing requirements.

IV. ETHICAL CONCERNS IN THE INTERIM

The domestic regulatory gap also presents ethical issues for practicing lawyers in the commercial space industry. The *Model Rules* instill attorneys with an ethical duty to inform their clients as to “what the law is.”⁶⁶ The rules also serve an important role in defining what lawyers cannot do.⁶⁷ The current regulatory gap presents a legal grey area, frustrating both of these goals. Next, this Note will survey application of the *Model Rules* to scenarios that practitioners may encounter: misrepresentation or nondisclosure in FAA licensing, and similar concerns in exigency scenarios.

A. LAUNCH VEHICLE LICENSES

Like all lawyers, those assisting companies who seek to apply for an FAA launch vehicle license are forbidden from counseling or aiding clients in conduct that the lawyer *knows* is criminal or fraudulent.⁶⁸ During the FAA licensing process, lawyers may have difficulty ascertaining what planetary protection representations or disclosures are legally required in light of the FAA’s limited jurisdiction.

If a lawyer *does not know* of the nondisclosure or misrepresented information on the application, it is doubtful the lawyer would face disciplinary action.⁶⁹ “Fraud” is defined by the *Model Rules* as conduct that is intended to deceive and is fraudulent under a disciplining jurisdiction’s substantive or procedural law.⁷⁰ A lawyer who unknowingly fails to disclose planetary protection concerns would not have committed fraud as the definition’s scienter requirement is not met.⁷¹ An unintentional omission or misrepresentation may go unactioned, as other

65. *Id.* The FAA released a report determining that reentry and recovery of the Dragon capsules would have no significant impacts related to hazardous materials, solid waste, and pollution prevention, but this report did not consider planetary protection. Federal Aviation Agency, *Final Environmental Assessment and Finding of No Significant Impact for Issuing a Reentry License to SpaceX for Landing the Dragon Spacecraft in the Gulf of Mexico* (Aug. 2018).

66. See Mirmina, *supra* note 55, at 9 (citing MODEL RULES OF PROF’L CONDUCT R. 1.4 cmt. 3 (2020)) [hereinafter MODEL RULES]; MODEL RULES R. 2.1 (“In representing a client, a lawyer *shall exercise independent professional judgment and render candid advice.*”) (emphasis added).

67. See, e.g., MODEL RULES R. 1.2 (establishing the scope of representation and allocation of authority between client and lawyer); MODEL RULES R. 3.3 (stating requirements of candor towards tribunals); MODEL RULES R. 8.4 (defining professional misconduct).

68. See MODEL RULES R. 1.2(d).

69. See MODEL RULES R. 1.2(d); MODEL RULES R. 4.1(b); MODEL RULES R. 8.4(c).

70. MODEL RULES R. 1.0 (d). “Crime” is not defined by the *Model Rules*.

71. See MODEL RULES R. 1.2(d).

jurisdictions have found that Model Rule 8.4(c)'s broader prohibition of "conduct involving dishonesty, fraud, deceit or misrepresentation" possesses a similar requirement.⁷² Moreover, discipline under the current regulatory framework only provides for license suspension or revocation, and a finding of civil liability, making it unclear whether omission or misrepresentation would constitute a crime if done unknowingly.⁷³

If a lawyer *knows* of the nondisclosure or misrepresented information on the application, the lawyer could face disciplinary action.⁷⁴ Even if the nondisclosure or misrepresentation was found not criminal or fraudulent, Model Rule 8.4(c)'s broader standard would likely be grounds for discipline.⁷⁵ Model Rule 1.2(d) and 4.1(a) would also apply if the lawyer made an affirmative misrepresentation, and Model Rule 4.1(b) would apply if the lawyer failed to make a material disclosure.⁷⁶

When an attorney whose services are used in a licensing application later learns of a client's material non-disclosure or misrepresentation, the consequences are less clear. The first suggestion in this scenario is for practitioners to ask clients for permission to disclose the planetary protection concern to the FAA.⁷⁷ If the client agrees to disclosure, the lawyer will likely be allowed to continue representation.⁷⁸ In the event the client does not agree, Model Rule 1.16(a)(1) requires a lawyer to withdraw if "the representation will result in violation of the rules of professional conduct or other law."⁷⁹ If a lawyer assists in covering up or otherwise continues to affirm the application's representations as true, the lawyer would likely be violating the *Model Rules* just as a lawyer who *knows* of missing material or misrepresented information when filing a licensing application would be.⁸⁰

In the event a lawyer withdraws from representation, they must still uphold their duty to protect the former client's confidences.⁸¹ Model Rule 1.6 states that a lawyer "shall not reveal information relating to the representation of a client."⁸²

72. MODEL RULES R. 8.4(c); see *Att'y Grievance Comm'n of Maryland v. Stanalonis*, 126 A.3d 6, 16–17 (Md. 2015) (finding violation of 8.4(c) generally required a "conscious objective or purpose" to the misrepresentation or omission") (citing *Att'y Grievance Comm'n v. Nwadike*, 6 A.3d 287 (2010)).

73. See 14 C.F.R. § 406.9; 18 U.S.C. § 1001 (prohibiting knowing and willful false statements to executive agencies or agents thereof).

74. See MODEL RULES R. 1.2(d); MODEL RULES R. 4.1; MODEL RULES R. 8.4(b); MODEL RULES R. 8.4(c); 18 U.S.C. § 1001; *Matter of Chaplin*, 790 S.E.2d 386, 387–88 (S.C. 2016), reinstatement granted, 812 S.E.2d 734 (S.C. 2018).

75. See MODEL RULES R. 8.4(c).

76. See MODEL RULES R. 1.2(d); MODEL RULES R. 4.1.

77. See MODEL RULES R. 1.4; MODEL RULES R. 1.6(a); MODEL RULES R. 2.1 cmt. 5.

78. See MODEL RULES R. 1.16(a).

79. MODEL RULES R. 1.16(a)(1).

80. See MODEL RULES R. 1.2(d); MODEL RULES R. 4.1; MODEL RULES R. 8.4(c); 18 U.S.C. § 1001.

81. See MODEL RULES R. 1.6; MODEL RULES R. 1.9(c).

82. MODEL RULES R. 1.6(a); see RESTATEMENT (THIRD) OF THE LAW GOVERNING LAWYERS § 59 (2000) (prohibiting revelation of confidential information only if "there is a reasonable prospect that doing so will

However, a lawyer may reveal this information if the client gives informed consent, if the disclosure is impliedly authorized, or if an exception to the rule applies.⁸³ A lawyer whose client refuses to explicitly authorize disclosure may still disclose under the exceptions outlined in Model Rule 1.6(b).⁸⁴ It is important to remember, however, that a lawyer's disclosure to a third party may violate Model Rule 1.6 if the disciplining authority does not agree that an applicable exception was satisfied.⁸⁵

A lawyer is permitted to disclose client confidences to prevent reasonably certain death or substantial bodily harm.⁸⁶ "Reasonably certain" is defined by the Rule as either an "imminent harm" or a "present and substantial threat that someone will later suffer such harm if the lawyer does not act."⁸⁷ Revelation of an undisclosed or misrepresented planetary protection concern may show a "present and substantial threat" of future harm due to the potentially catastrophic consequences of forward and backwards contamination.⁸⁸ Despite these consequences, a lawyer who defends their disclosure under this exception may have a difficult time establishing that individuals are "reasonably certain" to be subjected to that harm.⁸⁹

A lawyer may also reveal client confidences to prevent the client from committing a crime or fraud or to prevent, mitigate, or rectify a client's consummated fraud.⁹⁰ For these exceptions to apply, the client must be using or must have used the lawyer's services in furtherance of a crime or fraud that will reasonably result in "substantial injury to the financial interests or property of another."⁹¹ While a lawyer's services are likely used in furtherance of a client's crime or fraud when they misrepresent or fail to reveal a material disclosure, it may be difficult to establish a "substantial injury to the financial interests or property of another."⁹²

adversely affect a material interest of the client or if the client has instructed the lawyer not to use or disclose such information.").

83. See MODEL RULES R. 1.6.

84. See MODEL RULES R. 1.6(b).

85. See *Cleveland Metro. Bar Assn. v. Heben* 81 N.E.3d 469, 471 (Ohio 2017), amended, 87 N.E.3d 215 (applying Ohio law) (rejecting defense of confidence disclosure under state equivalent of 1.6(b)(3) and 1.6(b)(5)); *In re Conduct of Conry*, 491 P.3d 42, 56 (2021) (applying Oregon law) (rejecting defense under state equivalent of 1.6(b)(5)).

86. See MODEL RULES R. 1.6(b)(1).

87. MODEL RULES R. 1.6, cmt. 6.

88. See MODEL RULES R. 1.6, cmt. 6..

89. MODEL RULES R. 1.6; see NAT'L RESEARCH COUNCIL, ASSESSMENT OF PLANETARY PROTECTION REQUIREMENTS FOR MARS SAMPLE RETURN MISSIONS 46 (2009) ("...the potential for large-scale pathogenic effects arising from the release of small quantities of pristine martian samples is still regarded as being very low."); Walter Ammann et al., MARS SAMPLE RETURN BACKWARD CONTAMINATION – STRATEGIC ADVICE AND REQUIREMENTS 37 (Sept. 2012) ("...lack of knowledge on potential Mars pathogens, [makes it] impossible to . . . model the consequence of the potential release of a Mars organism.") [hereinafter MARS SAMPLE ASSESSMENT].

90. See MODEL RULES R. 1.6(b)(2); MODEL RULES R. 1.6(b)(3).

91. MODEL RULES R. 1.6(b)(2); MODEL RULES R. 1.6(b)(3).

92. MODEL RULES R. 1.6(b)(2); MODEL RULES R. 1.6(b)(3).

These exceptions might most readily apply to cases of backwards contamination. Unlike forward contamination of unowned celestial bodies, backwards contamination may implicate destruction of another's property interests— however, the reasonable certainty standard articulated in these exceptions further complicates a defense to disclosure.

Model Rule 4.1(b) addresses “where a client’s crime or fraud takes the form of a lie or misrepresentation.”⁹³ Lawyers shall not knowingly “fail to disclose a material fact to a third person when disclosure is necessary to avoid assisting a criminal or fraudulent act by a client, unless disclosure is prohibited by [Model] Rule 1.6.”⁹⁴ The Rule’s comments indicate there may be situations in which Model Rule 4.1(b) grants lawyers the discretion to make a “noisy withdrawal,” disaffirming opinions, documents, and affirmations to call attention to and avoid assisting in a client’s criminal or fraudulent conduct.⁹⁵

Others believe that a plain reading of Model Rule 4.1(b) expands the scope of Model Rule 1.6(b).⁹⁶ Critics take issue with this approach, arguing that the legislative history of the *Model Rules*, textual evidence within those rules, and issues regarding civil liability, work against this interpretation.⁹⁷ Despite these critiques, courts have cited Model Rule 4.1(b) without discussion of Model Rule 1.6 when disciplining attorneys who fail to disclose a material fact to third parties.⁹⁸ Even if a jurisdiction concludes that Model Rule 4.1(b) may require disclosure in some cases, substantive law may not require disclosure in FAA license applications if the concern was inadvertently or negligently withheld as opposed to willfully misrepresented.⁹⁹ This claim may be even stronger in light of the FAA’s lack of authority over extra-orbital activities because federal statutes such as those outlawing false statements to a federal agent contain a jurisdictional element.¹⁰⁰

Another consideration for practitioners representing corporations or other organizations is complying with Model Rule 1.13.¹⁰¹ The Rule requires lawyers to proceed as reasonably necessary in the best interests of the organization if the

93. MODEL RULES R. 4.1, cmt. 3.

94. MODEL RULES R. 4.1, cmt. 3.

95. See MODEL RULES R. 4.1(b), cmt. 3; In re Application of Oklahoma Bar Ass’n to Amend Oklahoma Rules of Pro. Conduct, 2007 171 P.3d 780, 789.

96. See MODEL RULES R. 4.1(b).

97. Peter R. Jarvis & Trisha M. Rich, *The Law of Unintended Consequences: Whether and When Mandatory Disclosure Under Model Rule 4.1(b) Trumps Discretionary Disclosure Under Model Rule 1.6(b)*, 44 HOFSTRA L. REV. 421, 422, 431–432, 435–437 (2015).

98. See In re Singer, 335 P.3d 627, 629, 631 (Kan. 2014) (finding lawyer violated KRPC 4.1(b) by directing escrow agent to amend document in order to conceal \$1.9 million credit from lender); In re Sellers 669 So. 2d 1204, 1206 (La. 1996) (stating lawyer’s failure to disclose existence of collateral mortgage to third party violated RPC Rule 4.1(b)).

99. See MODEL RULES R. 4.1 (“... a lawyer shall not knowingly. . .”); see also Jarvis & Rich, *supra* note 97, at 433 (arguing that assisting cannot mean “merely letting something happen without stopping it.”).

100. 18 U.S.C. § 1001(a) (“... any matter *within the jurisdiction* of the executive, legislative, or judicial branch of the Government of the United States . . .”).

101. MODEL RULES R. 1.13.

lawyer knows that an organization's member has violated a legal obligation to the organization or violated a law that reasonably might be imputed to the organization that is likely to result in the organization's substantial injury.¹⁰² Unless the lawyer reasonably believes it is not in the corporation's best interest, the lawyer is required to refer the matter to a higher authority within the organization including, if necessary, the highest authority that can act on the organization's behalf.¹⁰³

Moreover, the lawyer may disclose the matter to an entity outside of the organization notwithstanding Model Rule 1.6 if the organization's highest authority insists upon the action, refuses to act, or otherwise fails to address a clear violation of law.¹⁰⁴ Where a lawyer reasonably believes planetary protection concerns or their concealment could substantially injure the organization, this rule may allow disclosure to a federal agency like the FAA.¹⁰⁵ It may be difficult to establish that an organization would suffer substantial injury—reputationally or otherwise—from an undisclosed or misrepresented planetary protection concern.¹⁰⁶ The rule's text indicates that a lawyer is only required to tell the organization's highest authority about the action; additional disclosures to parties outside of the organization remain within the lawyer's discretion.¹⁰⁷

Practitioners will also have to consider potential professional ramifications of disclosing a client's confidences, and many may choose not to exercise this discretion under any circumstance.¹⁰⁸ However, if the conduct is later revealed and adjudicated, the lawyer has additional disclosure requirements under a lawyer's duty of candor to a tribunal.¹⁰⁹

Model Rule 3.3(a)(1) prohibits lawyers from knowingly making false statements of fact to tribunals or failing to correct prior false statements.¹¹⁰ Additionally, a lawyer must take reasonable remedial measures, including disclosure to the tribunal, if they know that a person has engaged, is engaging, or will engage in criminal or fraudulent conduct related to the proceeding.¹¹¹ These

102. MODEL RULES R. 1.13(b).

103. MODEL RULES R. 1.13(b).

104. MODEL RULES R. 1.13(c).

105. Assuming that 18 U.S.C. § 1001 or another comparable statute made the misrepresentation or concealment a "clear violation of law." See MODEL RULES R. 1.13(c)(1).

106. See, e.g., Michael Sheetz, *Latest SpaceX Valuation Shows 'an unlimited amount of funding' Available in Private Markets*, *Equidate Says*, CNBC (Apr. 13, 2018), <https://www.cnbc.com/2018/04/13/equidate-spacex-27-billion-valuation-shows-unlimited-private-funding-available.html> [perma.cc/8SBE-KW7X] (showing greater valuation of SpaceX following Falcon Heavy launch); Theodore Schleifer, *SpaceX's Valuation is Expected to Climb to \$24 Billion*, *Vox* (Apr. 12, 2018), <https://www.vox.com/2018/4/12/17229542/spacex-rocket-space-valuation-elon-musk-fundraising> [perma.cc/HH9T-2ASU].

107. See *Hays v. Page Perry, LLC*, 92 F. Supp. 3d 1315, 1322 (N.D. Ga. 2015) (finding only Model Rule 1.13(b) to be compulsory).

108. For a discussion on how a lawyer's exercise of discretion may still result in unethical conduct, see Charles A. Kelbley, *Legal Ethics: Discretion and Utility in Model Rule 1.6*, 13 *FORDHAM URB. L.J.* 67, 75–78 (1985).

109. See MODEL RULES R. 3.3.

110. See MODEL RULES R. 3.3(a)(1).

111. See MODEL RULES R. 3.3(b).

provisions apply until the conclusion of the proceeding even if this knowledge “requires disclosure of information otherwise protected by [Model] Rule 1.6.”¹¹² Executive agencies like the FAA are considered tribunals when acting in an adjudicative capacity.¹¹³ When the misrepresentation or nondisclosure of a planetary protection concern is adjudicated by the FAA or in court, a lawyer is required to disclose any misrepresentation or material nondisclosure made during licensing regardless of whether that information contains client confidences.

B. EXIGENCY SCENARIOS

Emergencies in space are inevitable. While the regulatory gap remains, companies and their legal counsel may have to make difficult choices outside of the FAA’s jurisdiction. Unlike FAA license applications, exigency scenarios are unplanned. Thus, actions that should be taken in extra-orbital instances of harmful contamination may be purely discretionary without explicit licensing terms to the contrary. These actions are less likely to be criminal or fraudulent, eliminating many grounds for professional misconduct.¹¹⁴ For instance, an action that is neither criminal nor fraudulent would not implicate Model Rule 1.2(d) or Model Rule 4.1(b).¹¹⁵

Even so, there may be situations where attorneys wish to disclose a client’s confidential information. Exigency scenarios may only satisfy Model Rule 1.6(b)(1).¹¹⁶ Much like in cases involving FAA licensing misrepresentations and nondisclosures, a lawyer who defends their disclosure under this exception must establish it was necessary to prevent either imminent harm or a “present and substantial threat that someone will later suffer such harm if the lawyer does not act.”¹¹⁷ The defending lawyer may have a similarly difficult time establishing that a particular individual was “reasonably certain” to be subjected to that harm.¹¹⁸

Regardless of whether Model Rule 1.6(b)(1) applies, a lawyer representing organizations may exercise the discretion to disclose to an outside entity if the organization’s highest authority insists on the action, refuses to act, or otherwise

112. See MODEL RULES R. 3.3(c).

113. See MODEL RULES R. 1.0(m). A tribunal acts in a “adjudicative capacity” when “a neutral official, after the presentation of evidence or legal argument by a party or parties, will render a binding legal judgment directly affecting a party’s interests in a particular matter.” MODEL RULES R. 1.0(m).

114. See MODEL RULES R. 1.2(d) (“... conduct that the lawyer knows is *criminal or fraudulent*”) (emphasis added); MODEL RULES R. 4.1(b) (“... necessary to avoid a *criminal or fraudulent* act by a client . . .”) (emphasis added); MODEL RULES R. 8.4(b) (“... commit a criminal act . . .”)

115. See MODEL RULES R. 1.2(d); MODEL RULES R. 4.1(b).

116. See MODEL RULES R. 1.13(c)(2); *Model Rules* 1.6(b)(2) and 1.6(b)(3) require the action to concern a client’s commission of a crime or fraud. MODEL RULES R. 1.6(b)(2); MODEL RULES R. 1.6(b)(3).

117. See MODEL RULES R. 4.1(b), cmt. 3.

118. See MODEL RULES R. 1.6; see also NAT’L RESEARCH COUNCIL, *supra* note 89, at 46; MARS SAMPLE ASSESSMENT, *supra* note 89, at 37.

fails to address a clear violation of law.¹¹⁹ A lawyer may disclose the matter to the FAA but may face substantial hurdles in establishing a clear violation of law or a reasonably certain injury to the lawyer's organization that necessarily required disclosure to an outside authority.¹²⁰

Any affirmative misrepresentation done to cover up a misrepresented or non-disclosed planetary protection concern would likely qualify as a material fact under Model Rule 4.1(a).¹²¹ Depending on the circumstances, other behavior may qualify as dishonesty, deceit, or misrepresentation under Model Rule 8.4(c).¹²² If later discovered and adjudicated, a lawyer's additional duties under Model Rule 3.3 are implicated.¹²³

C. "DON'T MIND THE GAP"

Understanding the practical purpose of applying the *Model Rules* to planetary protection may be difficult. As mentioned above, FAA licensing only potentially addresses planetary protection during launch and reentry.¹²⁴ Given the FAA's prior practice of ignoring or minimally addressing these concerns, compounded by the fact that no professional discipline cases have ever been recorded in the commercial space industry, many lawyers may do nothing when faced with controversial situations. To avoid this ethical dilemma, practitioners may remain willfully ignorant of planetary protection concerns entirely.¹²⁵ Others may not even conclude that their conduct violates the *Model Rules*, arguing that while the conduct is unlawful, it is neither criminal nor fraudulent.¹²⁶

But this last proposition cannot be true in all cases. At minimum, withdrawal is necessary in some situations.¹²⁷ As seen above, circumstances may require a "noisy withdrawal" or even disclosure to the FAA.¹²⁸ Exigency scenarios are more difficult to traverse because the conduct is likely neither criminal nor fraudulent. However, an attorney's discretion may still allow for disclosure of a misrepresented or non-disclosed planetary protection concern to a higher authority.¹²⁹

119. See MODEL RULES R. 1.13.

120. See MODEL RULES R. 1.13(c).

121. See MODEL RULES R. 4.1(a).

122. See MODEL RULES R. 8.4(c).

123. See MODEL RULES R. 3.3.

124. Pub. L. No. 108-492.

125. See Rebecca Roiphe, *The Ethics of Willful Ignorance*, 24 GEO. L. J., 187, 190 (2011); but see Model Rules R. 1.0(f) ("'Knowingly,' 'known,' or 'knows' denotes actual knowledge of the fact in question. A person's knowledge may be inferred from circumstances.") (emphasis added).

126. See Paul R. Tremblay, *At Your Service: Lawyer Discretion to Assist Clients in Unlawful Conduct*, 70 FLA. L. REV. 251, 278 (2018).

127. See MODEL RULES R. 1.6(a).

128. See MODEL RULES R. 1.2(d); MODEL RULES R. 4.1(b).

129. See MODEL RULES R. 1.13(c); MODEL RULES R. 1.6(b)(1).

When exercising that discretion, attorneys may be aided by a timeless mantra: “Integrity is doing the right thing when you don’t have to—when no one else is looking or will ever know”¹³⁰ Even when a lawyer believes their assistance is permitted by the *Model Rules* or that the odds of being disciplined for unpermitted conduct are miniscule, attorneys should always “maintain the highest standards of ethical conduct.”¹³¹ Sometimes a lawyer should go beyond the standard set forth in the *Model Rules* to maintain the integrity of the profession and preserve public confidence in our system of justice.¹³² After all, attorneys’ ethical obligations are in place not to punish lawyers but to protect the public from their misconduct.¹³³

While it is uncertain when this regulatory lacuna will be filled, perhaps the most practical advice is “don’t mind the gap.” In other words, lawyers should treat planetary protection with more care than in the past and act within their power to ensure clients do not conceal misrepresented or undisclosed instances of harmful contamination. Unintentional disclosures will likely not prompt disciplinary action, while intentional disclosures will. If a lawyer becomes retroactively aware of a misrepresented or nondisclosed planetary protection concern, the lawyer should consult with the client and recommend they communicate the correction to the FAA. If the client refuses to disclose, the lawyer should withdraw from representation and consider disaffirming any submitted documentation that would constitute assisting in the client’s crime or fraud. A lawyer should consider exercising their discretion if a Model Rule 1.6(b) exception applies or if the organization’s highest authority fails to act or adequately respond to the misrepresentation or material nondisclosure. In exigency scenarios, the same considerations must be taken into account against the backdrop that the conduct is likely neither criminal nor fraudulent. A lawyer should again look to withdrawal from representation and, if possible, disclose planetary protection concerns under Model Rule 1.6(b) or Model Rule 1.13.

CONCLUSION

Planetary protection is vitally important to the future of space exploration and humankind. The domestic “regulatory gap” refers to the United States’ inability to abide by obligations imposed by the OST. By failing to authorize and

130. CHARLES MARSHALL, SHATTERING THE GLASS SLIPPER: DESTROYING FAIRY-TALE THINKING BEFORE IT DESTROYS YOU (2003).

131. MODEL CODE OF PROFESSIONAL RESPONSIBILITY pmbl.; see *United States v. Hammad*, 858 F.2d 834, 839 (2d Cir. 1988); MCLE New England, *Practicing with Professionalism Resource Materials* 1-67 (2015) (“The MBA Statement of Lawyer Professionalism reminds attorneys that the Disciplinary Rules are minimal standards and that lawyers should adhere to the highest principles of professional conduct.”).

132. See Mirmina, *supra* note 55, at 10 (imploing lawyers to advise clients on both what is legal and what is “right”).

133. See, e.g., *Matter of Discipline of Arabia*, 495 P.3d 1103, 1110 (Nev. 2021); *In re Disciplinary Action against Montez*, 812 N.W.2d 58, 68 (Minn. 2012) (citing *In re Rebeau*, 787 N.W.2d 168, 173 (Minn. 2010)); *In re Kelley*, 801 P.2d 1126, 1130 (Cal. 1990).

continually supervise the private sector, the United States cannot meaningfully prevent or even effectively monitor whether private entities are introducing harmful contaminants to Earth and other celestial bodies.

While NASA has tried to update and improve its planetary protection policies, these policies cannot be enforced against private entities conducting missions unaffiliated with the U.S. government. Moreover, limitations in the FAA's licensing scheme have led to instances that raise planetary protection concerns, exposing shortfalls in the regulatory framework. The inclusion of special reporting provisions and possible legislative solutions may signal a step in the right direction but a long-term solution is necessary to "fill" the regulatory gap.

Filling this gap would further practitioners' understanding of how to advise and act in the face of planetary protection concerns. From navigating the FAA's licensing and application process to observing exigency scenarios, clients and lawyers would benefit from increased clarity surrounding planetary protection. In the interim: "don't mind the gap."