TIMELINE OF NEPA IN U.S. SPACE POLICY



USSR launches Sputnik, the first human-made satellite.

1957



 Committee on Space Research (COSPAR) formed and takes on planetary protection internationally.

· USSR Luna 2 lands on the moon.



Space Treaty (OST).i 1967

United States, Great

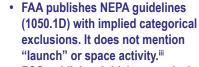
Britain, and the Russian

Federation sign the Outer



Apollo 11 mission lands first humans on the lunar surface

1969



FCC publishes initial categorical exclusion criterion.iv

1958

U.S. National Academy of Sciences (NAS) urges lunar operations not "make impossible forever after critical scientific experiments."

> FAA issues guidance on "experimental permits" for reusable suborbital rockets for human spaceflight while ensuring NEPA compliance.ix



1968

"Earthrise" photo captured by Apollo 8 crew.ii

Photo credit: NASA

NASA publishes its programmatic assessment for routine payloads.vi



United States Government orbital debris mitigation policies first established.

NEPA signed into law

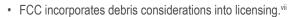
in the United States.

2001

FAA adopts debris mitigation practices but does not require collision avoidance, post-mission disposal, or minimum lifetimes in commercial licensing regulations.y

FAA streamlines processing of experimental permit applications for reusable suborbital rockets^x. The EIS proposes an unlimited

number of launches and reentries for one year.xi



· The Commercial Space Launch Amendments Act of 2004 (CSLAA) enacted

FAA updates its categorical exclusion document (1050.1E) preparing evaluation for commercial launch applications where an EA has not been prepared.viii



FAA allows license applicants to prove an "equivalent level of safety" for human spaceflight, craft reentry, and launch site operations.xiii

· FCC proposes rulemaking to mitigate orbital debris.

2018

2000

First mission of the International Space Station.



1999

2013 FAA begins revising of launch and reentry licensing regulations to prevent orbital debris from upper stages. Paused to update the U.S. Government orbital debris mitigation standard practices (completed in 2019).

FAA updates its categorical exclusions (1050.1F) to specify when commercial launch site operators require an EA for vertical or horizontal launch and reentry.xii





- · FCC proposes rule amendment for orbital debris mitigation of orbital debris in the new Space Age.
- Orbital Debris Mitigation Standard Practices published by NASA with FAA, NOAA, and FCC input.
- SpaceIL lander crashes on the moon carrying tardigrades and human DNA.

2023

 FAA proposes rule for removing upper stages of commercial launch vehicles and other components within 25 years.xx

 The Fiscal Responsibility Act defines a major federal action requiring a NEPA review as an action determined by the agency to "subject to substantial Federal control and responsibility" and exclusions from the definition.xlvi



GAO publishes Large Constellations of Satellites: Mitigating Environmental and Other Effects, and Satellite Licensing: FCC Should Reexamine Its **Environmental Review Process for Large** Constellations of Satellites.

· National Science and Technology Council publishes the National Orbital Debris Implementation Plan.xix



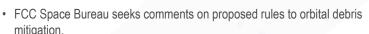
2021

FAA begins regulation revision for upper stages of commercial launch vehicles.





- FAA Streamlined Launch and Reentry Licensing Requirements codifies 1050.1F.
- Boeing, Lockheed Martin, Northrop Grumman, and ULA recommend the FAA amend §450.47 to address space environmental impacts such as debris, collision risk, and interference.
 - The FAA disagrees; states the applicability of NEPA to space debris is outside the scope of its rulemaking.xvi
- · FCC updates its rules on orbital debris mitigation seeking comments on the probability of accidental explosions, collision risk for multi-satellite systems. maneuverability requirements, and casualty risk.xvii



- NOAA revisits debris mitigation rules for remote sensing missions.xxii
- Loper Bright Enterprises v. Raimondo strips agencies of their Chevron
- · Viasat v. FCC and International Dark-Sky Association v. FCC occur.
- · CEQ final ruling issued that the CEQ revise its regulations for implementing NEPA.xxiii
- Authors wrote their contributions to this paper.



- FAA updates its categorical exclusion document (1050.1G) specifying an EA is required for launches at existing launch sites.
- Executive Order 14335 directs the FAA to eliminate or expedite environmental reviews for launch and reentry, determine which actions are not subject to NEPA, and establish categorical exclusions.





