

RECORD OF DECISION

Adoption of Federal Aviation Administration Final Environmental Impact Statement for the Spaceport America Commercial Launch Site, Sierra County, New Mexico



**National Aeronautics and Space Administration
Mission Support Directorate
Headquarters
Washington, D.C.**

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RECORD OF DECISION
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
ADOPTION OF THE FINAL ENVIRONMENTAL IMPACT STATEMENT FOR THE
SPACEPORT AMERICA COMMERCIAL LAUNCH SITE
SIERRA COUNTY, NEW MEXICO

The National Aeronautics and Space Administration (NASA) has prepared this Record of Decision (ROD) for the purpose of adopting the Federal Aviation Administration (FAA) Office of Commercial Space Transportation *Final Environmental Impact Statement for the Spaceport America Commercial Launch Site* (hereafter referred to as the “FEIS”). The Council of Environmental Quality (CEQ) National Environmental Policy Act (NEPA) implementing regulations encourage adoption of existing documents where applicable. Title 40 CFR 1506.3(c) states, “A cooperating agency may adopt without recirculating the environmental impact statement of a lead agency when, after an independent review of the statement, the cooperating agency concludes that its comments and suggestions have been satisfied.” The FAA FEIS and ROD are available on NASA’s NEPA portal at <http://www.nasa.gov/agency/nepa-news.SpaceportAmericaNM>.

A. Background of FAA Action (Purpose and Need)

The proposed Federal action of the FEIS was for the FAA to issue a Launch Site Operator License to the New Mexico Spaceport Authority (NMSA), which proposed to operate this site for horizontal and vertical launches of suborbital¹ Reusable Launch Vehicles (sRLVs). The vehicles may carry space flight participants², scientific experiments, or other payloads³.

The FAA, as Lead Federal Agency, published the FEIS in November 2008 and issued the ROD on December 15, 2008. The FAA prepared and published the FEIS to document the analysis of environmental consequences associated with the construction and operation of Spaceport America and reasonable alternatives to the Proposed Action. NASA’s role as a cooperating agency in this FEIS was to provide special expertise with respect to potential environmental impacts from space launches and the operation of a launch site. As a cooperating agency on this FEIS, NASA has independently reviewed the aforementioned existing document, and concluded that the FAA has satisfactorily addressed any comments NASA made to the document. The FAA FEIS is the primary reference and basis for the preparation of this NASA ROD, and NASA hereby adopts this FEIS.

The Spaceport America site is in Sierra County near Upham, New Mexico (NM) at a location approximately 72 kilometers (km) (45 miles) north of Las Cruces and 48 km (30 miles) southeast of Truth or Consequences. The site is between 32-33° North latitude and 106-107° West

¹ A suborbital rocket is a vehicle, rocket-propelled in whole or in part, intended for flight on a suborbital trajectory, and the thrust of which is greater than its lift for the majority of the rocket-powered portion of its ascent. 49 U.S.C. 70102(19) Suborbital trajectory is the intentional flight path of a launch vehicle, reentry vehicle, or any portion thereof whose vacuum instantaneous impact point (IIP) does not leave the surface of the Earth.

² ‘Space flight participant’ means an individual who is not crew, carried within a launch vehicle or reentry vehicle. 49 U.S.C. 70102(17)

³ Payload means an object that a person undertakes to place in outer space by means of a launch vehicle or reentry vehicle, including components of the vehicle specifically designed or adapted for that object. 49 U.S.C. 70102(10)

longitude at an average elevation of 1,372-meter (4,500 feet), in the region referred to as the Jornada del Muerto Basin. The site features a dry and sunny climate, 1,372-meter (4,500-foot) launch pad elevation, low population density, contiguous sections of available land, and access to the restricted airspace over the nearby United States (U.S.) Army's White Sands Missile Range (WSMR), located approximately 14 km (9 miles) east of the site.

Under the FAA's Proposed Action (the Preferred Alternative), horizontal launch vehicles would launch and land at the Spaceport America airfield. Vertical sRLVs would launch from Spaceport America and would either land at Spaceport America or at WSMR. Rocket-powered vertical landing vehicles would land on either the Spaceport America airfield or a vertical launch/landing pad. Vertical launch vehicles with components that would return to Earth by parachute would have flight profiles such that these components (i.e., main rocket stages, payload sections, and crew/passenger modules) would land at WSMR. Spaceport America would coordinate these landings with WSMR, which must approve them in advance.

The National Aeronautics and Space Act of 1958, as amended (42 U.S.C. 2451(d)(1)(5)) establishes a mandate to conduct activities in space that contribute substantially to "the expansion of human knowledge of the Earth and of phenomena in the atmosphere and space," and "the preservation of the role of the United States as a leader in aeronautical and space science and technology and in the application thereof to the conduct of peaceful activities within and outside the atmosphere.

The National Aeronautics and Space Act mandates that NASA contribute to the expansion of human knowledge of phenomena in space. In order to accomplish this mandate, NASA supports technology developments and creates multiple paths for maturation of innovative technologies for flight. These technologies would be expected to benefit NASA, other government entities, commerce, and the public (through educational institutions, technology transfer, etc.). NASA facilitates progress of space technologies toward flight readiness status through testing in space-relevant environments. NASA helps foster the development of the commercial reusable suborbital transportation industry. NASA also facilitates low-cost access to suborbital environments for a broad range of innovators as a means of advancing space technology development and supporting the evolving entrepreneurial commercial space industry.

B. The FAA Environmental Impact Statement

B.1 Public and Agency Involvement

Scoping for the development of the EIS began with the publication of the FAA Notice of Intent (NOI) in the Federal Register on January 23, 2006 (71 FR 3915). During scoping, the FAA invited the participation of Federal, State, and local agencies, Native American tribes, environmental groups, citizens, and other interested parties to assist in determining the scope and significant issues to be evaluated in the EIS. In February 2006 scoping meetings were held in Truth or Consequences and Las Cruces, NM to request input from the public on concerns regarding the proposed activities, as well as to gather information and knowledge of issues relevant to analyzing the environmental impacts associated with the Proposed Action.

Public review and comment on the Draft EIS (DEIS) were initiated with publication of the Environmental Protection Agency's (EPA's) Notice of Availability (NOA) in the Federal Register on July 3, 2008 (73 FR 38204). The FAA published an additional NOA, Public Comment Period, and Public Hearings and Request for Comment in the Federal Register on July

9, 2008 (73 FR 39370). The FAA also announced the availability of the DEIS and the scheduled public hearings through local newspapers. Copies of these Federal Register and newspaper notices are included in Appendix B of the FEIS. Copies of the DEIS were mailed to agencies, tribes, organizations, and private citizens who had requested copies. Copies of the DEIS also were distributed to public libraries in southern NM and to the media.

The public review and comment period lasted 45 days, ending on August 18, 2008. However, comments received after the end-date were also considered in the FEIS. Six public hearings were held: two on August 5, 2008 in Alamogordo, NM; two on August 6, 2008 in Truth or Consequences, NM; and two on August 7, 2008 in Las Cruces, NM. Appendix N of the FEIS contains the public comments received, transcripts of the six public hearings, comment identification, and the FAA's responses. The FAA responded to all substantive comments, and included in the FEIS any necessary changes or edits resulting from the comments received. The EPA issued a NOA for the FEIS on November 14, 2008 (73 FR 67511). The FAA issued the ROD on December 15, 2008.

B.2 NASA's Proposed Action

The Proposed Action (NASA's Preferred Alternative) is to adopt the FAA FEIS in order to allow for the launching of technology demonstration missions aboard horizontal and vertical sRLVs from Spaceport America in NM. The vehicles may carry space flight participants, scientific experiments, or other payloads.

NASA would contract for flight opportunities for existing research payloads on the horizontal and vertical suborbital commercial launch vehicles. These flights would provide access to reduced-gravity, high-altitude monitoring of space and Earth, and, eventually, methods for environmental sampling. Under contract to NASA, providers of commercial sRLVs, would support commercial payload integration and suborbital space transportation services via 3-4 minute periods of microgravity or other selectable levels of low gravity for technology development and related research. sRLVs would fly semi-automated and automated payloads on both piloted and robotic flights. Simulated high-quality microgravity would be provided at the top of a single, long parabolic trajectory that, after temporary engine shut-off, would reach the edge of space, from which small satellites could be launched.

These vehicles would return to Earth within an hour of launch via powered flight and be designed to keep hypergravity loads to a minimum. Among NASA's key goals for technology demonstrations would be regular, frequent, and predictable access to near-space at a reasonable cost with easy recovery of intact payloads. Taking advantage of launch opportunities available at Spaceport America aboard sRLVs would provide NASA's technology development activities the flight opportunities required to raise the Technology Readiness Levels (TRLs) in preparation for potential use on future NASA science missions.

Although, NASA would contract for the flight opportunities, the FAA would retain responsibility for issuing experimental permits and/or launch licenses for operation of all sRLVs from Spaceport America.

B.3 Key Environmental Issues Evaluated

The operational activities at Spaceport America that may have environmental consequences and would support or involve, either directly or indirectly, licensed launches include:

- Transport of launch vehicles to the assembly or staging areas
- Transport and storage of rocket propellants and other fuels
- Launch, landing and recovery activities of vehicles
- Airspace operations
- Other Activities (Ground-Based Tests and Static Firings, Training and X Prize Cup events)

The key environmental issues of implementing the Proposed Action are those associated with the air emissions that would accompany the normal launch of the sRLVs. The FAA completed an impact analysis, including cumulative impacts, for each resource area under the Proposed Action, including:

- Compatible land use
- Section 4(f) lands and farmlands
- Noise
- Visual resources and light emissions
- Air quality
- Water quality
- Wetlands, wild and scenic rivers
- Fish, wildlife, and plants
- Hazardous materials, pollution prevention, and solid waste
- Socioeconomics, Environmental Justice, and children's environmental health and safety risks
- Energy supply and natural resources
- Historical, Architectural, Archaeological, and Cultural Resources
- Secondary or induced impacts

Additional environmental parameters were also considered. These included geology and soils, mineral resources, airspace, health and safety, and traffic and transportation. Analyses of these additional resource areas are contained within the FEIS appendices.

B.4 Environmental Consequences of the Proposed Action

In the Spaceport America FEIS the FAA analyzed the environmental impacts of constructing and operating a commercial launch facility, including all related activities and uses that are reasonably foreseeable and any actions considered connected to the Proposed Action within the context of NEPA. Section 5 of the FEIS provides a complete description of the potential environmental consequences of the Proposed Action and the No Action Alternative analyzed by the FAA.

The Proposed Action would consist principally of short-term impacts associated with the exhaust emissions from the sRLVs taking off and landing. Various propellants and other fuels would be required at Spaceport America to launch and land vehicles and to operate vehicles and infrastructure to support launches and recoveries. The actual amounts and types of rocket propellants and other fuels would depend on the specific launch operations and types of sRLVs finally selected. Most of the rocket propellant supply would be trucked to the site from national or regional suppliers.

Cumulative impacts are “the incremental impact of the actions when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions (40 CFR 1508.7). The cumulative impacts analysis in the FEIS focuses on those past, present, and reasonably foreseeable future actions that have the potential to contribute to cumulative impacts. The past, current and future projects and activities are listed in the section 5.1 of the FEIS. Launches of NASA technology demonstrations would be within the number of launches analyzed in the FEIS and impacts outside of those discussed in the FEIS are not expected to be significant.

C. Assessment of the Analysis

The environmental impacts of a normal launch of NASA missions under NASA’s Proposed Action would consist principally of short-term impacts associated with the exhaust emissions from the sRLVs. Such impacts of these launches from Spaceport America have been adequately addressed and fully characterized in the FAA FEIS, are within the scope of operations analyzed in the FAA FEIS, and would not be expected to cause any environmental impacts beyond those of routine sRLVs launch operations.

D. Choice of Alternatives

The selection of the Proposed Action (Preferred Alternative) is fully consistent with the mandate of the National Aeronautics and Space Act to contribute to the expansion of human knowledge of phenomena in space.

E. Additional Information

The FAA has the responsibility, under 49 U.S.C. subtitle IX, chapter 701, to oversee and coordinate the conduct of commercial launch and reentry operations, issue and transfer commercial licenses authorizing those operations, and protect the public health and safety, safety of property, and national security and foreign policy interests of the U.S during commercial launch or reentry activities. All individual launch license and permit applications are subject to separate review by the FAA. The New Mexico Spaceport Authority (NMSA) has the responsibility to comply with all applicable laws and regulations (14 CFR 420.41(a)).

Access to the launch site would be controlled by the NMSA (per 14 CFR 420.53). Private-use areas, such as vehicle assembly areas, would be under the administrative control of individual Spaceport America launch operators. These operators would be responsible for adhering to NMSA policies and procedures, as well as compliance with FAA regulations.

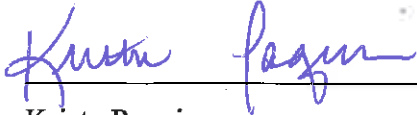
F. Mitigation

The only expected or immediate environmental impacts of NASA launches are the same as those for the launch of other payloads that would launch from Spaceport America.


As a condition of the Launch Site Operator License number LSO 08-011, NMSA must comply with the mitigation measures outlined in the FAA ROD and FEIS. When contracting with a commercial operator of an sRLV to launch from Spaceport America, NASA would ensure its payloads meet the FAA’s requirements for health and safety, as well as comply with the mitigation measures outlined in the FEIS.

NASA Decision

Based upon all of the forgoing, NASA has decided that preparations for and launch of the proposed NASA missions from Spaceport America aboard sRLVs would not significantly affect the quality of the environment.



Krista Paquin
Associate Administrator
Mission Support Directorate



Date