

Federal Aviation Administration

Office of Commercial Space Transportation

FINDING OF NO SIGNIFICANT IMPACT

**Launch Operator License for Delta II Expendable Launch Vehicles
at Cape Canaveral Air Force Station, Florida**

OVERVIEW: The Federal Aviation Administration (FAA) Office of Commercial Space Transportation (AST) is issuing this Finding of No Significant Impact (FONSI) for renewing a Launch Operator License to The Boeing Corporation (Boeing) for the operation of Delta II expendable launch vehicles at Cape Canaveral Air Force Station (CCAFS), Florida.

In May of 1988, the United States Air Force (USAF) prepared the *Medium Launch Vehicle Environmental Assessment, Cape Canaveral Air Force Station, Florida* (hereafter referred to as the 1988 EA) in accordance with the National Environmental Policy Act (NEPA) of 1969, 42 United States Code 4321-4347 (as amended) and the Council on Environmental Quality's (CEQ's) NEPA implementing regulations (40 Code of Federal Regulations [CFR parts 1500-1508]), to analyze the environmental impacts of Delta II launch operations at CCAFS. Under the Proposed Action in the 1988 EA, the USAF would renovate Launch Complex (LC)-17 and other support facilities at CCAFS to support 12 annual launches of the Delta II vehicle. In May of 1988, the USAF issued a FONSI, which concluded that the environmental impacts associated with the USAF's Proposed Action would not significantly impact the quality of the human environment, and therefore the preparation of an Environmental Impact Statement (EIS) was not required.

In accordance with the requirements of FAA Order 1050.1E, Change 1, paragraph 410, the FAA has independently evaluated the information contained in the 1988 EA and has verified the continued validity of the analysis contained in the EA. The FAA has determined that the 1988 EA sufficiently addresses the concerns of the FAA and complies with FAA requirements for implementing NEPA as stated in FAA Order 1050.1E, Change 1. The FAA has determined that there is no new information or analysis that would require preparation of a new or supplemental EA or EIS according to the CEQ Regulations (40 CFR § 1502.9(c)(1)). Therefore, the FAA issues this FONSI concurring with the analysis of impacts and findings in the 1988 EA and formally adopts the EA in compliance with the requirements at 40 CFR § 1506.3 to support renewing a Launch Operator License to Boeing for the operation of Delta II expendable launch vehicles at CCAFS. The 1988 EA is incorporated by reference and is summarized as necessary in this FONSI.

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PURPOSE AND NEED: The purpose of FAA's Proposed Action is to fulfill FAA/AST's responsibilities under 51 U.S.C. Subtitle V, ch. 509, §§ 50901-50923 (Chapter 509) and Executive Order (EO) 12465, *Coordination and Encouragement of Commercial Expendable*

Launch Vehicle Activities, for oversight of commercial space launch activities, including licensing of launch and reentry activities. The renewal of a Launch Operator License for the operation of Delta II expendable launch vehicles at CCAFS is consistent with the agency's responsibilities under Chapter 509 and EO 12465.

The need for action results from the statutory direction from Congress, FAA's regulations, and a Presidential Executive Order, to encourage, facilitate, and promote commercial space launches and reentries by the private sector and facilitate the strengthening and expansion of the U.S. space transportation infrastructure, in accordance with the applicable requirements.¹

PROPOSED ACTION: Under the FAA's Proposed Action, FAA/AST would renew a Launch Operator License to Boeing for the operation of Delta II expendable launch vehicles at CCAFS. A Launch Operator License would authorize launches of the 7420-10 and 7925 configurations of Delta II vehicles over the 5-year term of the license. The FAA may use the analysis in the 1988 EA and this FONSI to support the renewal of a Launch Operator License for the operation of Delta II expendable launch vehicles at CCAFS.

The activities associated with the FAA's Proposed Action are described in Chapter 1 of the 1988 EA and are summarized in this FONSI. In the 1988 EA, the USAF's Proposed Action was to modify LC-17 and its related support facilities to accommodate preparation and launch of Delta II vehicles. These renovations included modification of mobile service towers, fixed umbilical towers, and air conditioning, compressed air, water, and gaseous nitrogen systems. In addition, LC-17 would be updated with increased security through modifications to fencing, lighting, and locks. The USAF's Proposed Action, addressed in the 1988 EA, supported up to 12 annual launches of the Delta II 6925 and Delta II 7925 vehicle configurations at LC-17. The Delta II 7925 is the largest configuration available for Delta II and has been considered for the purposes of the environmental analysis.

ALTERNATIVES CONSIDERED: Alternatives considered by FAA/AST include the Proposed Action and the No Action Alternative. Under the No Action Alternative, the FAA would not renew a Launch Operator License for the operation of Delta II expendable launch vehicles at CCAFS and there would be no commercial launches of Delta II vehicles from CCAFS. Existing operation procedures, military operations, and other launch activities, including non-commercial launches of Delta II vehicles, would continue at CCAFS.

ENVIRONMENTAL IMPACTS: The following presents a brief summary of the potential environmental impacts discussed in the 1988 EA. This FONSI incorporates the 1988 EA by reference, summarizes those findings where appropriate, and is based on the potential impacts discussed in the EA. The FAA has determined the analysis of impacts presented in the 1988 EA represent the best available information regarding the potential impacts associated with the FAA regulatory responsibilities described in this FONSI. In addition, this FONSI presents any relevant newly available data on existing conditions, potential impacts, and measures to mitigate those impacts.

¹ 51 U.S.C. Subtitle V, ch. 509, §§ 50901-50923 (Chapter 509), the Commercial Space Transportation Competitiveness Act of 2000 (Public Law 106-405); Executive Order 12465, Coordination and Encouragement of Commercial Expendable Launch Vehicle Activities (February 24, 1984); CFR Title 14, Aeronautics and Space, Parts 400-450, Commercial Space Transportation, Federal Aviation Administration, Department of Transportation; the Commercial Space Act of 1998 (Public Law 105-303); the U.S. Space Transportation Policy of 2004; and the National Space Policy of 2010.

1. AIR QUALITY

Delta II launch operations at CCAFS would not result in significant impacts to air quality. As stated in the 1988 EA, solid propellant launch vehicle emissions or accidental release of toxic gases during failed vehicle launches could result in exhaust emissions of aluminum oxide particles, carbon monoxide, hydrochloric acid, nitrogen oxide, water, and carbon dioxide. However, these emissions would not result in exceedances of the National Ambient Air Quality Standards or Occupational Safety and Health Administration workplace exposure limits under both launch and accident scenarios; therefore, Delta II launch operations would not have a significant impact on air quality at CCAFS or the surrounding areas.

The 1988 EA did not evaluate potential climate change effects due to emissions of greenhouse gases, or effects on stratospheric ozone levels due to emissions of ozone-depleting substances (ODS) from Delta II launches. However, the FAA's 2010 *Final Supplemental Environmental Assessment to the September 2008 Environmental Assessment for Space Florida Launch Site Operator License* (hereafter the 2010 SEA) evaluated these potential impacts with respect to Generic Launch Vehicle launches. Based on earlier studies of the Space Shuttle and the Titan IV rocket, both of which carry much larger quantities of propellant than the Generic Launch Vehicle, the 2010 SEA concluded that impacts of the Generic Launch Vehicle on climate change and ozone depletion would be negligible. The Space Shuttle and Titan IV contain much larger quantities of propellant than the Delta II as well, and consequently the impacts of the proposed launches of the Delta II on climate change and ozone depletion also are expected to be negligible.

2. BIOLOGICAL RESOURCES (INCLUDING FISH, WILDLIFE, AND PLANTS)

No significant impacts to biological resources (fish, wildlife, and plants) are expected from Delta II launch operations at CCAFS. As stated in the 1988 EA, wildlife in the vicinity of LC-17 could be affected by elevated noise levels and exposure to the ground-level exhaust cloud generated during launches. Launch operations could also result in localized, temporary scorching and spotting of vegetation due to rocket exhaust; defoliation and reduced survivorship of vegetation due to acid deposition from rocket exhaust; a low probability of bird strikes during launch events; and birds and terrestrial mammals suffering startle responses due to launch noise. However, as these effects would be temporary and because launch activities would occur infrequently, the Proposed Action would not result in an adverse effect on terrestrial vegetation or wildlife.

Marine species in the vicinity of CCAFS could also be adversely affected by launch activities. Sonic booms produced during launch operations would take place over the open ocean. As sonic booms would be well attenuated at ocean depths, launches would be infrequent, and the density of marine species within the range in which they would be affected by sonic booms would be low, no adverse impacts to marine wildlife would be expected. In addition, marine species could be struck during launch activities as vehicle components are jettisoned into the open ocean. However, as the probability of such a strike is extremely small (less than one animal strike annually for all launch activity in both the Atlantic and Pacific Oceans), no impacts would be expected.

The 1988 EA noted several federally and state listed threatened and endangered species present at or in the vicinity of CCAFS which could be affected by Delta II launch operations. The USAF has undergone extensive consultation with both the U.S. Fish and Wildlife Service and the National Marine Fisheries Service under Section 7 of the Endangered Species Act. The 45th Space Wing manages species and base activities to minimize potential species impacts, and operates under numerous Biological Opinions for the protection of these species. The 45th Space Wing continually works with the USFWS and NMFS, and reinitiates consultation as needed, to update the Biological Opinions when new species are listed or new activities are proposed that have not already been assessed for potential impacts. The 45th Space Wing is currently working with USFWS to finalize a Programmatic Biological Opinion that would address all species and routine activities that occur at CCAFS. Licensees would be required to adhere to all requirements agreed to by the USAF to ensure the protection of listed species; therefore, no significant impacts to listed species would be expected to result from Delta II launch operations.

3. HISTORICAL, ARCHITECTURAL, ARCHEOLOGICAL, AND CULTURAL RESOURCES

LC-17 is located in an archaeologically sensitive area of CCAFS. As described in the 1988 EA, an archaeological/historical survey of CCAFS was conducted in 1982 which consisted of literature and background searches and field surveys. In addition, more recent data regarding cultural resources at CCAFS indicates newly identified historic resources in the vicinity of LC-17 that were not present at the time the 1988 EA was prepared. However, as the Proposed Action would not result in any ground disturbing activities, removal, alteration, or physical impingement of any archaeological or historical resources at CCAFS, Delta II launch operations at CCAFS would not result in impacts to cultural resources.

4. DEPARTMENT OF TRANSPORTATION ACT SECTION 4(F) RESOURCES

No impacts to Section 4(f) resources are expected under the Proposed Action. Delta II launch operations could necessitate closure of public access to recreational resources at Cape Canaveral National Seashore or Merritt Island Wildlife Refuge; however, as launches are infrequent, and as Delta II launches would only represent a small component of the on-going launch activities at CCAFS, these impacts are not anticipated to be significant. The Proposed Action would not be considered a constructive or physical use of these Section 4(f) resources, and therefore, the Proposed Action would not result in significant impacts to Section 4(f) resources.

5. GEOLOGY AND SOILS

All Delta II vehicle-related activities would take place at or adjacent to impervious surfaces and no new construction would occur. Any accidental release of liquid fuels would be addressed in accordance with existing hazardous materials management and spill prevention and response plans.

6. HAZARDOUS MATERIALS, POLLUTION PREVENTION, AND SOLID WASTE

Delta II launch operations at CCAFS would not result in impacts to hazardous materials and hazardous waste management. As stated in the 1988 EA, hazardous wastes could be generated during Delta II launch operations. However, all hazardous materials and waste would be handled within existing processes and all launch activities would be required to comply with existing CCAFS standards for hazardous materials management, including CCAFS Environmental Standards and Safety Standards, Air Force Instruction (AFI) 32-7042 (*Solid and Hazardous Waste Compliance*), AFI 32-7086 (*Hazardous Materials Management*), and AFI 32-7080 (*Pollution Prevention Program*). Assuming continued compliance with these procedures, there would be no significant impacts to human or environmental health due to hazardous materials and wastes.

7. COMPATIBLE LAND USE

The Proposed Action would not result in impacts to land use because no change in planned or existing land use would be expected as a result of Delta II launches at CCAFS. As LC-17 is associated with ongoing space-launch programs, Delta II launch operations would not create an adverse impact on existing land uses adjacent to the launch complex. The entire State of Florida is defined as being part of a coastal zone under the Federal Coastal Zone Management Act. No construction activities are planned as part of the Proposed Action; therefore, there would be no impacts to coastal resources as covered under this Act. In addition, as there are no wild and scenic rivers as designated under the Wild and Scenic Rivers Act of 1968 located on or near CCAFS, no impacts to wild and scenic rivers would occur as a result of the Proposed Action.

8. NOISE

Delta II launch operations at CCAFS would not result in significant noise impacts. As stated in the 1988 EA, noise generated from combustion of rocket fuel during liftoff of the Delta II launch vehicle could result in disturbance in the immediate area of the launch pad. Sonic booms generated as launch vehicles reach supersonic speeds could also lead to disturbance to local communities. However, as Delta II vehicle launches would occur infrequently and be of a short duration, and as any sonic booms produced during launch operations would take place over the open ocean, these impacts are not anticipated to be significant.

9. SOCIOECONOMICS, ENVIRONMENTAL JUSTICE, AND CHILDREN'S ENVIRONMENTAL HEALTH AND SAFETY

No significant impacts to socioeconomics, environmental justice, or children's environmental health and safety are expected as a result of Delta II launch operations at CCAFS. Renewal of a Launch Operator License for Delta II launch operations would not represent a substantial change in existing launch vehicle operations at CCAFS; therefore, no impacts to socioeconomics from Delta II launch operations would be expected.

The Proposed Action would have negligible impacts on residents surrounding CCAFS; as a result, the Proposed Action would not disproportionately adversely affect minority or low-income populations or children's environmental health and safety.

10. WATER QUALITY (INCLUDING FLOODPLAINS AND WETLANDS)

No impacts to water resources (surface water, groundwater, wetlands, or floodplains) are expected from Delta II launch operations at CCAFS. As stated in the 1988 EA, surface waters and groundwater in the vicinity of CCAFS could be contaminated through exposure to the ground-level exhaust cloud or wastewater discharged during launch operations. However, strict adherence to safety and disposal procedures at CCAFS would ensure that no significant impacts to water quality result from wastewater discharges. The ground-level exhaust cloud would persist for only a few minutes and then disperse quickly following a launch event. As a result, this cloud is not expected to significantly impact surface waters in the vicinity of LC-17. Corrosion of jettisoned vehicle components or residual propellant on jettisoned components could contribute to toxic concentrations in the deep ocean environment; however, due to the limited number of launch events, the small amount of residual propellants present, and the large volume of water available for dilution, no significant impacts to water are expected from jettisoned stages. According to the 1988 EA, in the unlikely event of a near-shore or near-pad impact of a vehicle following termination, water quality may be impacted. As the probability of launch anomalies resulting in the accidental release of rocket propellant in the early stage of flight is small (one percent probability), no significant impacts to water quality are expected.

11. CUMULATIVE IMPACTS

Delta II launch operations would not result in significant cumulative impacts to any resource. Past, present and reasonably foreseeable future actions at CCAFS and the surrounding area include ongoing and future aircraft and rocket launch operations at CCAFS and facilities in the vicinity of CCAFS such as Kennedy Space Center and Patrick Air Force Base.

The Proposed Action could result in a minor, temporary increase in air emissions in the vicinity of CCAFS. These emissions would be infrequent and temporary, and when combined with emissions from existing and potential future aircraft and rocket launch operations in the area, would not affect local attainment levels for any National Ambient Air Quality Standards. While Delta II launch operations would result in emissions of greenhouse gases and ozone depleting substances, these emissions would be extremely small in the context of national and global emissions. As a result, the incremental contribution to cumulative air quality impacts from Delta II launch operations would be negligible.

The noise generated from Delta II launch operations would be infrequent and would be similar to the types of noise routinely generated at CCAFS and surrounding areas. When combined with other noise producing activities in the vicinity of CCAFS, little to no impact would be expected. As a result, the incremental contribution to cumulative noise impacts from Delta II launch operations would be negligible.

Noise produced during Delta II launch operations could result in minor, temporary disturbance of wildlife in the vicinity of CCAFS. However, because launch noise would be infrequent and temporary, marine species would be present in low densities within the range in which they

would be affected by sonic booms, and because the licensee would be required to adhere to all requirements agreed to by the 45th Space Wing to ensure the protection of listed species, the incremental contribution to wildlife impacts from Delta II launch operations would be negligible.

Delta II launch operations would result in no impact or negligible impacts to cultural resources; Section 4(f) resources; geology and soils; hazardous materials and hazardous waste management; land use; socioeconomics, environmental justice, and children's environmental health and safety; or water resources at CCAFS; therefore, the proposed Delta II launch operations would not contribute to cumulative impacts for these resources. Accordingly, the Proposed Action in conjunction with all past, present, and reasonably foreseeable future actions would not be expected to have significant cumulative impacts.

12. NO ACTION ALTERNATIVE

Under the No Action Alternative, the FAA would not renew a Launch Operator License to Boeing for the operation of Delta II vehicles at CCAFS, and therefore, there would be no commercial launches of the Delta II launch vehicle at CCAFS. Impacts from commercial Delta II operations would not occur to: air quality; biological resources (including fish, wildlife, and plants); cultural resources, Section 4(f) resources; geology and soils; hazardous materials and hazardous waste management; land use; noise; socioeconomic impacts, environmental justice, and children's health and safety; water resources (including groundwater, surface water, wetlands and floodplains); and cumulative impacts; however, impacts resulting from existing activities at CCAFS, include non-commercial launches of Delta II vehicles, would continue.

CONCLUSION: The 1988 EA examined the potential for significant environmental impacts related to Delta II launch activities at CCAFS. The areas evaluated for environmental impacts in the 1988 EA and this FONSI include air quality; biological resources (fish, wildlife, and plants); cultural resources; Section 4(f) resources; geology and soils; hazardous materials and hazardous waste management; land use; noise; socioeconomics, environmental justice, and children's environmental health and safety; water resources; and cumulative impacts. The 1988 EA determined that exhaust emissions and noise produced during Delta II launch operations could have adverse impacts on air quality, biological resources, and noise at CCAFS. However, because emissions quantities would be inappreciable, and noise and air emissions would be temporary and infrequent, the proposed Delta II launch operations would not result in significant impacts to the environment.

The FAA has independently evaluated the information contained in the 1988 EA and has verified the continued validity of the analysis contained in the document. Through this re-evaluation, the FAA has determined that there is no new information or analysis that would require preparation of a new or supplemental EA or EIS according to the CEQ Regulations (40 CFR § 1502.9 (c)(1)). The FAA is therefore adopting the 1988 EA, and is using this document to support its finding on the Proposed Action.

After careful and thorough consideration of the facts contained herein, the undersigned finds that the proposed Federal action is consistent with existing national environmental policies and objectives as set forth in Section 101 of NEPA and other applicable environmental requirements and will not significantly affect the quality of the human environment or otherwise include any condition requiring consultation pursuant to Section 102(2)(c) of NEPA.

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