NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

NOTICE: HQ-13-01

National Environmental Policy Act: Operation and Launch of Falcon 9 version 1.1 Space Vehicle at Launch Complex-40 (LC-40), Cape Canaveral Air Force Station (CCAFS), Florida

AGENCY: National Aeronautics and Space Administration (NASA)

ACTION: Finding of No Significant Impact

SUMMARY: Pursuant to the National Environmental Policy Act of 1969 (NEPA), as amended (42 U. S. C. 4321, *et seq.*), the Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA (40 CFR parts 1500-1508), and NASA policy and procedures (14 CFR part 1216, subpart 1216.3), NASA has made a Finding of No Significant Impact (FONSI) with respect to the operation and launch of the Falcon 9 version 1.1(v1.1) space vehicle at LC-40, CCAFS, Florida. NASA is proposing to use the Falcon 9 v1.1 as a launch vehicle for future NASA payloads.

ADDRESSES: The Supplemental Environmental Assessment (SEA) that serves as the basis for this FONSI can be viewed online at www.nasa.gov/agency/nepa and at the following locations:

(a) Central Brevard Public Library & Reference Center, 308 Forrest Ave., Cocoa, FL 32922 (321-633-1792)
(b) Cocoa Beach Public Library, 550 North Brevard Ave., Cocoa Beach, FL 32931 (321-868-1104)
(c) Melbourne Public Library, 540 E. Fee Ave., Melbourne, FL 32901 (321-952-4514)
(d) Merritt Island Public Library, 1195 North Courtenay Parkway Merritt Island, FL 32953 (321-455-1369)
(e) Port St. John Public Library, 6500 Carole Ave., Port St. John, FL 32927 (321-633-1867)
(f) Titusville Public Library, 2121 S. Hopkins Ave., Titusville, FL 32780 (321-264-5026)
(g) NASA Headquarters Library, 300 E Street, S.W., Washington, D.C. 20546-0001 (202-358-0168)
(h) Goddard Space Flight Center Visitor Center, 8800 Greenbelt Rd, Greenbelt, MD 20771 (301-286-8981)

A limited number of the hard copies of the SEA are available by contacting Ms. Tina Norwood at the address provided below.

FOR FURTHER INFORMATION CONTACT:

Ms. Tina Norwood
NASA NEPA Manager
Environmental Management Division
NASA Headquarters Office of Strategic Infrastructure

300 E. Street, SW
Washington DC 20546
Email: tnorwood@hq.nasa.gov
Telephone: 202-358-7324

SUPPLEMENTARY INFORMATION: In 2007, the Air Force (AF) prepared an Environmental Assessment (EA) and issued a FONSI for the operation and launch of the SpaceX Falcon 1 and the first version of the Falcon 9 (Block 1) (ref: *Environmental Assessment for the Operation and Launch of the Falcon 1 and Falcon 9 Space Vehicles at Cape Canaveral Air Force Station Florida, November 2007*). The 2007 EA analyzed the AF leasing land and facilities to SpaceX, construction modifications of the LC-40 facility, and the operation and launch of both the Falcon 1 and Falcon 9 (Block 1) vehicles. NASA adopted the 2007 EA.

In 2013, the AF prepared a Supplemental Environmental Assessment (SEA) to address the newer version of the Falcon 9, called Falcon 9 (Block 2) and referred to as the Falcon 9 v1.1. NASA served as a cooperating agency in the preparation of the AF SEA. NASA has reviewed the SEA prepared for the operation and launch of the Falcon 9 v1.1 and has determined it represents an accurate and adequate analysis of the scope and level of associated environmental impacts. NASA, as the adopting agency, has concluded that the SEA prepared by the AF adequately describes NASA's proposed action, the potential environmental impacts and in all other respects meets NASA's requirements for an EA. NASA, therefore, has adopted the AF SEA and hereby incorporates it by reference in this FONSI.

Purpose and Need

The purpose and need for the Proposed Action was established in the 2007 EA. SpaceX was selected by NASA to demonstrate delivery and return of cargo to the ISS. SpaceX has successfully demonstrated that ability and now needs a larger version of the Falcon 9 to satisfy NASA requirements in a more efficient and effective manner, and therefore continue to support the U.S. goal of encouraging activities by the private sector to strengthen and expand U.S. space transportation infrastructure. The Proposed Action would provide greater transport capability in its mission to support the ISS, and provide a launch vehicle for scientific payloads and commercial satellite operators.

Proposed Action and No Action Alternative

The Proposed Action is the operation and launch of the Falcon 9 v1.1 vehicle from the existing LC-40 at CCAFS. Falcon 9 v1.1 launches would have payloads as part of the second stage, including scientific payloads and the Dragon Capsule for resupply of the ISS.
The Falcon 9 v1.1 includes a taller first stage (~27% taller than the Falcon 9 Block 1), more on-board fuel (~ 60% more in first stage and 100% more in second stage), and newer first stage engines (Merlin D). The Merlin D engines will provide greater thrust at lift-off (approximately 63% more than the Falcon 9 Block 1 Merlin engines). Activities associated with the v1.1 will be consistent with current activities at LC-40. No construction is planned as part of the proposed action. Since 2007, SpaceX has successfully launched the Falcon 9 (Block 1) from LC-40. The most recent launch was March 1, 2013, which included carrying the Dragon capsule as payload.

Under the No Action Alternative, SpaceX would not launch the Falcon 9 v1.1. The Falcon 9 Block 1 is no longer in production and thus, under the No-Action Alternative, SpaceX would not

be able to efficiently continue to support NASA's continued resupply operation of the ISS with heavier payloads from CCAFS. The U.S. goals of providing low-cost and reliable access to space and encouraging the use of underutilized government infrastructure and resources to promote commercial investment and use of space would not be realized at LC-40 under the No Action Alternative..

Summary of Environmental Impacts

The purpose of the SEA was to address the change in the proposed action from the 2007 EA (i.e. a larger Falcon 9 vehicle producing more thrust). Thus, the SEA focused on the potential environmental impacts from operation and launch of the Falcon 9 v1.1 vehicle from LC-40 and the No Action Alternative. The SEA incorporated by reference the 2007 EA to minimize redundancies.

The analysis in the SEA incorporated the potential environmental consequences analyzed in the 2007 EA and identified any additional impacts or changes beyond those analyzed in the 2007 EA. Effects to land use, noise, biological resources, cultural resources, air quality, orbital debris, hazardous materials/waste, water resources, geology/soils, transportation, utilities, health and safety, socioeconomics, environmental justice, and 4(f) properties were assessed. The analysis revealed negligible to minor effects on those resources from direct launch operations. Likewise, cumulatively, the effects to these resources would be negligible to minor. There would be no effect on federally listed species, as well as cultural resources. No significant environmental impacts were identified. A summary table of potential environmental impacts is presented below.

Summary of Potential Environmental Impacts from the Proposed Action and the No Action Alternative	
Resource Area	**Potential Environmental Impact from Proposed Action**
Land Use / Visual Resources	There would be no significant impacts to coastal resources. There would be no significant impacts to land use compatibility since CCAFS and LC-40 use includes launching space vehicles. Visible impact would only include the normally seen and short-lived vehicle contrails for each launch event.
Noise	There would be no significant impacts in noise levels in communities adjacent to CCAFS property due to normal daily operations. Short-term increases in the noise levels received in the community from the proposed launch of the Falcon 9 v1.1are also not anticipated to be significant. Long-term noise levels for the proposed launch activities for the Falcon 9 v1.1 are not expected to surpass the significance thresholds for impacts. Sonic booms generated by these launch events would impact the ocean surface beyond 30 miles off the coast and would not be audible on land; therefore, sonic booms would not produce any significant impacts in the surrounding areas.
Biological Resources	There would be no significant impacts on wildlife or vegetation (including federal and state-listed wildlife species) by daily operations. While protected species such as the Gofer tortoise and scrub-jay exist at CCAFS, they are not present at LC-40 and Falcon 9 v1.1 launches are not expected to create any significant impacts. SpaceX currently has a Light Management Plan which has been implemented for LC-40 operations which is designed to reduce or eliminate night-time impact to the sea turtle nesting/hatchling process.

	LC-40, there would be no impact on this resource area.
Air Quality	The operational impacts from the Proposed Action on air quality would not be significant. CCAFS and Brevard County are in an "Attainment" area and the operational emissions for the proposed Falcon 9 v1.1 vehicle launch represent an extremely small percentage of the Brevard County regional emissions and would not cause an exceedance of any NAAQS or Greenhouse gases (GHG).
Orbital Debris	There would be no significant impact to orbital debris by launching the Falcon 9 v1.1 vehicle.
Hazardous Materials / Waste	Operations supporting the Falcon 9 v1.1 vehicle would continue to use products containing hazardous materials, including paints, solvents, oils, lubricants, acids, batteries, surface coating, and cleaning compounds. Hazardous materials such as propellants, chemicals, and other hazardous material payload components would be transported to the facilities in accordance with DOT regulations. However, continued implementation of existing material and waste management and handling procedures during the operation of the Falcon 9 v1.1 vehicle would limit the potential for impacts. Therefore, there would be no significant impacts to the environment.
Water Resources	Operations supporting the launch of the Falcon 9 v1.1 would not result in additional impacts to surface water, groundwater resources, groundwater quality, wetlands, or floodplains. Continued implementation of the existing Spill Prevention, Control, and Countermeasures (SPCC) plan would reduce the potential for adverse impacts to water resources.
Geology and Soils	Daily operations and launches would not affect existing geology and soils, therefore there would be no significant impacts to this resource area.
Transportation	While there would be slightly more vehicle traffic during launch preparations, there would be no significant impacts on CCAFS traffic.
Utilities	There would be no significant impacts or need for additional electrical power needed for the Falcon 9 v1.1. Minor increased need for base-supplied deluge water of 30% or less for each launch is well within design standards for the existing systems therefore there would be no significant impacts to water supply.
Health and safety	The operation and launch of the Falcon 9 v1.1 does not add any new material or fuel sources to operations at LC-40. The only change is additional fuel volume usage of RP-1. All current and standard health and safety local, state, and federal procedures will continue to be in use during operation and launch, therefore this is no impact on health and safety.
Socioeconomics	Operations supporting the Falcon 9 v1.1 would cause no significant impacts on the area's socioeconomics. There may be a slight positive impact on area economics since SpaceX has been able to add new jobs.
Environmental Justice	Since the Falcon 9 v1.1 would operate from the existing facilities at CCAFS, there would be no significant impacts to area Environmental Justice issues.
4(f) Properties	No designated 4(f) properties, including public parks, recreation areas, or wildlife refuges, exist within the boundaries of CCAFS. While several public parks, recreation areas, and wildlife refuges are located outside of CCAFS, including the Merritt Island National Wildlife Refuge and the Cape Canaveral National Seashore, operations of the Falcon 9 v1.1 vehicle would not result in a use of a Section 4(f) property.

Ref: Environmental Assessment for the Operation and Launch of the Falcon 1 and Falcon 9 Space Vehicles at Cape Canaveral Air Force Station Florida, November 2007

On the basis of the SEA, NASA has determined the environmental impacts associated with the proposed action would not individually or cumulatively have a significant impact on the quality of the human environment. Therefore, an environmental impact statement is not required.

Richard J. Keegan, Jr.
Associate Administrator for Support Mission Directorate
National Aeronautics and Space Administration

12/9/13
Date