ADDENDUM TO THE 2019 WRITTEN RE-EVALUATION OF THE 2014 FINAL ENVIRONMENTAL IMPACT STATEMENT FOR THE SPACEX TEXAS LAUNCH SITE

Introduction and Background

Introduction

This written re-evaluation (WR) evaluates whether supplemental environmental analysis is needed to address changes to Space Exploration Technologies Corporation's (SpaceX) ongoing program of experimental test flights of a reusable suborbital launch vehicle from SpaceX's Boca Chica Launch Site (formerly referred to as the Texas Launch Site). This program is being conducted pursuant to the licensed test program (LRLO 20-119A) the Federal Aviation Administration (FAA) Office of Commercial Space Transportation issued on May 28, 2020. The affected environment and environmental impacts of construction and operation of the Boca Chica site in Cameron County, Texas were analyzed in the 2014 *Final Environmental Impact Statement for the SpaceX Texas Launch Site* (2014 EIS; FAA 2014a). The FAA's Record of Decision (ROD) was issued for this action on July 9, 2014. This WR describes modifications to SpaceX's Security Plan, specifically its intention to limit public access to the closure area defined in the 2014 EIS for an increased number of hours, and evaluates whether the impacts of the proposed increase in closures[1] fall within the scope of impacts analyzed in the 2014 EIS.

To accommodate the existing licensed test program (LRLO 20-119A), the 180 hours of closures per year would need to be increased to up to 300 hours of closures per year. Due to the nature of the testing, there have been two instances where closures extended overnight following unplanned test anomalies to ensure public safety prior to opening the road the next morning. Additional information is provided in the "Proposed Action" section below.

Issuance of a launch license or experimental permit is a major federal action subject to the requirements of the National Environmental Policy Act of 1969 (NEPA). As such, the FAA must assess the potential environmental impacts of SpaceX's proposed increase in operational closure hours. The FAA's environmental policies and procedures for implementing NEPA (FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*) provide that the FAA may prepare a WR to determine whether the contents of previously prepared environmental documents remain substantially valid or whether significant changes to a previously analyzed proposed action require the preparation of a supplemental EIS. Additionally, FAA Order 1050.1F, Paragraph 9-1.d, provides time limits for final EISs and states:

[1] A closure begins when local law enforcement shut down SH 4 and Boca Chica Beach for SpaceX operations that are regulated by an FAA license. A closure ends when SpaceX operations conducted under an FAA license are completed and local law enforcement open SH 4 and Boca Chica Beach.

1. If major steps toward implementation of the proposed action (such as the start of construction, substantial acquisition, or relocation activities) have not commenced within three years of approval of the final EIS, a WR must be prepared (unless a decision has been made to prepare a new or supplemental EIS); or

2. If the proposed action is to be implemented by the FAA in stages or an action implemented by an applicant requires successive FAA approvals, a WR of the continued adequacy, accuracy, and validity of the EIS must be made at each major stage or approval point that occurs more than three years after approval of the final EIS.

In accordance with Paragraph 9-2.c of FAA Order 1050.1F, the preparation of a new or supplemental EIS is not necessary when the following can be documented:

1. The proposed action conforms to plans or projects for which a prior EA and Finding of No Significant Impact (FONSI) have been issued or a prior EIS has been filed and there are no substantial changes in the action that are relevant to environmental concerns;

2. Data and analyses contained in the previous EA and FONSI or EIS are still substantially valid and there are no significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts; and

3. Pertinent conditions and requirements of the prior approval have been, or will be, met in the current action.

This WR provides documentation for the above three factors as well as the FAA's conclusion that the contents of the 2014 EIS remain current and substantially valid and the decision to issue a launch license or experimental permit to conduct tests of the proposed reusable suborbital launch vehicle from the Boca Chica Launch Site with a modified Security Plan does not require the preparation of a new EA or EIS. During preparation of this WR, the FAA distributed a draft copy of the WR to the consulting parties to the National Historic Preservation Act Section 106 process for the project—Texas State Historic Preservation Officer (SHPO), National Park Service (NPS), Advisory Council on Historic Preservation, U.S. Fish and Wildlife Service (USFWS), and Texas Parks and Wildlife Department (TPWD).

Background

Following the ROD, the FAA has prepared four WRs (FAA 2014b, 2017, 2019a, 2020b) and three addendums to the 2019 WR (2019b, 2019c, 2020a) to address project changes proposed by SpaceX (see Table 1). Since the publication of the 2014 EIS, ROD, and the WRs and addendums, SpaceX has continued to develop the Boca Chica Launch Site.

Table 1. Summary of Environmental Documentation for the SpaceX Texas Launch Site

Document	Date of Publication	Proposed Action
EIS for the SpaceX Texas Launch Site	2014	Issue launch licenses and/or experimental permits to SpaceX for Falcon 9, Falcon Heavy, and reusable suborbital launch vehicle launches from a private launch site

WR of the 2014 EIS	2014	Site design modifications of the Control Center Area
WR of the 2014 EIS	2017	Site design modifications of the Control Center Area and VLA
WR of the 2014 EIS	2019	Site design modifications of the Control Center Area and VLA; Starhopper experimental flight tests
1st Addendum to the 2019 WR	2019	Addressed the 2019 brush fire, methane, and nighttime operations
2nd Addendum to the 2019 WR	2019	Addressed a test vehicle hop up to 30 kilometers
3rd Addendum to the 2019 WR	2020	Test program updates, construction of redundant test pad at the VLA, and removal of methane flare at the VLA
WR of the 2014 EIS	2020	Site design modifications at the VLA (Construction WR)

Notes:
VLA = Vertical Launch Area

SpaceX is also working with the FAA to prepare a draft Environmental Assessment (EA) for the Starship/Super Heavy program. The Starship/Super Heavy program is a follow-up program to the flight test program that SpaceX is currently licensed to execute at the site. The draft EA will be subject to the FAA's evaluation and approval. The EA will allow the FAA to determine the following course of action: preparation of an EIS because the proposed action's environmental impacts would be significant, issuance of a FONSI, or issuance of a "Mitigated FONSI" providing for mitigation measures to address the proposed action's environmental impacts. The FAA may make this determination at any time: during the EA process or after SpaceX presents a draft EA for the FAA's approval.

Proposed Action as Analyzed in the 2014 EIS

The FAA's Proposed Action, which was the subject of the ROD and is described in full in Section 2.1 of the 2014 EIS, was to issue launch licenses or experimental permits to SpaceX to conduct launches of a reusable suborbital launch vehicle from the Boca Chica Launch Site. The Proposed Action and its assumptions remains the same as described in the 2014 EIS and subsequent WRs with exception of the proposed increase in the operational closure hours. There would be no changes to launch operations as described in the 2014 EIS, WRs, and addendums.

Like the closures discussed in the 2014 EIS, static fire engine tests and suborbital flight tests require restricting public access in the vicinity of the Vertical Launch Area (VLA) and securing land and water. The FAA based its environmental impacts analysis in the 2014 EIS on a maximum of 180 closure hours per year. However, to continue to accommodate the existing licensed test program (LRLO 20-119A), SpaceX would need to increase the number of closure hours to up to 300 hours per year. Due to the nature of past licensed testing, there have been two instances where closures extended overnight following unplanned test anomalies to ensure public safety prior to opening the road the next morning. Approximately 68 hours of closure occurred during those anomalies. During those instances, SpaceX was not performing testing during the entire closure, but assessing potential hazards at the VLA. A typical closure during nominal operations is approximately 8 hours. In each of the two anomalies, which required the extended hours, the Cameron County Commissioner granted SpaceX the extended closure to ensure public safety. The most recent extended closure occurred during hours after dusk, outside of beach use hours.

The FAA does not have a direct role in approving beach closures. However, increasing the number of closure hours assessed for environmental impacts will more accurately reflect SpaceX's current activities. Three hundred closure hours is an estimated maximum that would account for closures necessary to address any potential public safety issues in the event of a future unplanned anomaly. SpaceX has represented that it would not exceed 300 hours of closures per year. SpaceX is working with the Cameron County Commissioners Court and the Texas General Land Office (TGLO) to update existing agreements regarding when closures may occur and how closure hours are calculated. SpaceX would not be granted closure requests until it received approval from the Cameron County Commissioners Court.

Affected Environment

The existing conditions for the environmental impact categories analyzed in the 2014 EIS are unchanged from the conditions evaluated in previous assessments. The study area for the Proposed Action has not changed.

Re-evaluation of Environmental Consequences

Air Quality

The 2014 EIS concluded that the estimated emissions from construction and operation of the launch site represent an extremely small percentage of the Cameron County regional emissions and would not cause any National Ambient Air Quality Standards to be exceeded. The increase in closure hours would not result in an increase in the amount of air pollutant emissions reported in the 2014 EIS. Accordingly, the data and analyses contained in the 2014 EIS remain substantially valid, and the increase in closure hours would not result in a significant impact on air quality.

Biological Resources (including Fish, Wildlife, and Plants)

During preparation of the 2014 EIS, the FAA consulted the USFWS in accordance with Section 7 of the Endangered Species Act (ESA). The FAA prepared a Biological Assessment (BA) and entered into formal consultation with the USFWS to address potential effects to ESA-listed species and critical habitat. Based on the analysis presented in the BA, the FAA determined the Proposed Action "may affect and is likely to adversely affect" the following species: piping plover and its critical habitat, red knot, northern aplomado falcon, Gulf Coast jaguarundi, ocelot, and Kemp's ridley, hawksbill, leatherback, loggerhead, and green sea turtles. The FAA determined the Proposed Action "may affect, but is not likely to adversely affect" the West Indian manatee. Consultation with USFWS was completed with issuance of a Biological Opinion (BO) on December 18, 2013. The BO concurred with the findings in the BA and concluded no jeopardy to any species and no adverse modification to critical habitat. The BO specified non-discretionary terms and conditions that are necessary to avoid or minimize effects to listed species and critical habitat. The FAA and SpaceX are committed to implementing the conservation measures and terms and conditions outlined in the BO to minimize potential effects to ESA-listed species and critical habitat.

The increase in closure hours would not introduce any effects to biological resources, including ESA-listed species and critical habitat, which are outside the scope of effects analyzed in the 2014 EIS and the USFWS BO. The closure area was developed in consultation with the USFWS to include the Lower Rio Grande Valley National Wildlife Refuge due to the concern expressed by USFWS over potential public intrusion during SpaceX operations. SpaceX would continue to coordinate with Sea Turtle Inc. to ensure that staff are notified of beach closures for the purposes of sea turtle nest monitoring. Accordingly, the data and analyses contained in the 2014 EIS remain substantially valid and the increase in closure hours would not result in a significant impact on biological resources.

Climate

Appendix L of the 2014 EIS estimated that construction and operations at the launch site would emit 9,206 tons of carbon dioxide equivalent (CO_2e) emissions per year. The increase in closure hours would not result in an increase in the amount of greenhouse gas emissions reported in the 2014 EIS. Accordingly, the data and analyses contained in the 2014 EIS remain substantially valid, and the increase in closure hours would not result in significant climate-related impacts.

Coastal Resources

Although not required by the Coastal Zone Management Act,[2] during preparation of the 2014 EIS, a Federal Consistency Determination was submitted to the TGLO. The TGLO raised no objections to the Federal Consistency Determination. Based on this consultation, the FAA determined construction and operation of the launch site was consistent with the enforceable policies of the Texas Coastal Management Program. The increase in closure hours is still consistent with the Texas Coastal Management Program. Accordingly, the data and analyses contained in the 2014 EIS remain substantially valid, and the increase in closure hours would not result in a significant impact on coastal resources.

Department of Transportation Act Section 4(f)

During preparation of the 2014 EIS, the FAA consulted with the officials having jurisdiction over the affected Section 4(f) properties to determine if construction and operation of the launch site would result in a use of Section 4(f) resources (see Appendix C of the 2014 EIS). The FAA concluded that construction and operation of the launch site, including closing all or portions of Section 4(f) properties for up to 180 hours per year, would not result in a use of any Section 4(f) property. As described in the 2014 EIS, closures would have temporary, intermittent impacts on the use of the public parks, wildlife refuges, management areas, and historic resources identified as Section 4(f) properties.

Under the Proposed Action, testing operations would continue to necessitate the Cameron County Commissioners Court and/or the TGLO to close public access to Boca Chica State Park, Brazos Island

[2] Because the applicant (SpaceX) is seeking a license from the FAA, and the action is not a direct federal activity (15 CFR part 930), the FAA is not required to submit a consistency determination. Rather, the applicant (SpaceX) is required to submit a consistency certification.

State Park, the South Bay Coastal Preserve, and major portions of the Lower Rio Grande Valley National Wildlife Refuge (NWR) and Palmito Ranch Battlefield National Historic Landmark (NHL), the same areas that are currently affected by closures, for safety and security reasons and to alleviate concerns regarding potential impacts to public lands from the viewing public. Monitoring for unauthorized individuals within the closure area by SpaceX personnel would not include ground sweeps. Therefore, closures of the Section 4(f) properties would not cause physical harm to 4(f) resources.

SpaceX has represented that it would not exceed 300 hours of closures per year. These closures would occur on an intermittent basis. The proposed increase in closure hours would result in the Section 4(f) properties being closed to the public from 2 percent up to 3.4 percent of the year. SpaceX intends to notify the USFWS, NPS, TPWD, and Texas Historical Commission approximately two weeks in advance of operations requiring the closure area to close so the agencies could plan for the closures and avoid conflicts for special events or programs. In addition, no closures would be allowed to occur on major summer holidays or summer weekends between Memorial Day and Labor Day without the prior approval of the TGLO, in accordance with House Bill 2623, which was signed into state law by Governor Rick Perry on May 24, 2013.

The FAA consulted the officials having jurisdiction over the Section 4(f) properties as part of assessing whether the increase in closure hours would substantially impair the 4(f) resources (see Attachment 1). The FAA received comments from the USFWS and TPWD. The FAA did not receive a response from the NPS or Texas Historical Commission. The USFWS and TPWD disagree with the FAA's Section 4(f) determination that the proposed change would not result in a use of a Section 4(f) resource. The FAA replied to the USFWS and TPWD comment letters (see Attachment 1) and maintains its determination that the proposed change would not result in a use of a Section 4(f) resource.

Accordingly, the data and analyses contained in the 2014 EIS remain substantially valid, and the increase in closure hours would not result in a significant impact on Section 4(f) resources.

Farmlands

There are no farmlands located within or near the launch site. Farmlands were dismissed from analysis in the 2014 EIS. Thus, the increase in closure hours would not impact farmlands.

Hazardous Materials, Solid Waste, and Pollution Prevention

Increasing the closure hours would not modify hazardous materials, solid waste, and pollution prevention measures. Accordingly, the data and analyses contained in the 2014 EIS remain substantially valid, and the increase in closure hours would not result in a significant impact related to hazardous materials, solid waste, and pollution prevention.

Historical, Architectural, Archeological, and Cultural Resources

The 2014 EIS determined construction and operation of the launch site would directly affect the historic integrity of the Palmito Ranch Battlefield NHL through visual effects, including construction of towers and lighting. The FAA and other consulting parties executed a Programmatic Agreement (PA) and Memorandum of Agreement to mitigate adverse effects on historic properties. The increase in closure hours would not result in any new effects to historical, architectural, archaeological, and cultural resources.

In accordance with Stipulation VIII of the PA, the FAA sent this WR to the consulting parties for the purposes of identifying the proposed change to the undertaking (i.e., an increase in the amount of closure hours) and seeking concurrence that the proposed change does not require amending the PA. The FAA did not receive any objections to the FAA's determination that the proposed change does not requiring amending the PA. Accordingly, the data and analyses contained in the 2014 EIS remain substantially valid, and the increase in closure hours would not result in a significant impact on historical, architectural, archeological, and cultural resources.

Land Use

The increase in closure hours would not change existing land uses and would not modify the SpaceX facility boundaries that have been previously assessed. The increase in closure hours would not violate local land use ordinances. Accordingly, the data and analyses contained in the 2014 EIS remain substantially valid, and the increase in closure hours would not result in a significant impact on land use.

Natural Resources and Energy Supply

The increase in closure hours would not affect natural resources and energy supply. Accordingly, the data and analyses contained in the 2014 EIS remain substantially valid, and the increase in closure hours would not result in a significant impact related to natural resources and energy supply.

Noise and Noise-Compatible Land Use

The 2014 EIS concluded significant impacts to land use compatibility would occur as a result of increased personnel working on-site, traffic, and noise generated from operational activities and from increased noise during launches, particularly to Boca Chica Village (a residential area) and the surrounding public lands. The increase in closure hours would not alter noise at the site or result in compatible land use impacts beyond the noise levels and impacts discussed in the 2014 EIS. The increase in closure hours would not modify the previously assessed testing activities or durations of testing activities (FAA 2020a), and predicted noise levels would remain within the scope of the 2014 EIS. Accordingly, the data and analyses contained in the 2014 EA remain substantially valid.

Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks

The 2014 EIS concluded construction might have a beneficial impact on the local economy through direct spending, and that the related economic activity might lead to indirect job creation in areas such as the accommodation and food services and retail trade sectors. The increase in closure hours would not strain the capacity or affect the quality of emergency response, medical, or public education services. Restricted access to nearby resources during the temporary closures would affect all users equally and would therefore not result in disproportionate impacts to environmental justice populations (including minorities and low-income populations). The increase in closure hours would not disproportionately adversely affect children's environmental health and safety. The increase in closure hours would not result in additional impacts related to this impact category which are outside the scope of impacts analyzed in the 2014 EIS. Accordingly, the data and analyses contained in the 2014 EIS remain substantially valid, and the increase in closure hours would not result in a significant impact related to socioeconomics, environmental justice, and children's environmental health and safety risks.

Visual Effects (including Light Emissions)

The 2014 EIS determined that operational activities would impact the visual environment of Boca Chica Village residents and travelers on State Highway (SH) 4, but the impacts would be intermittent, temporary, and minimized through SpaceX's lighting management plan. In addition, the 2014 EIS concluded that operation of the VLA would likely have a significant impact on visual resources along SH 4 and the Palmito Ranch Battlefield NHL, and that nighttime launch operations would result in considerably higher levels of light emissions than those currently present at Boca Chica Village. The increase in closure hours would not modify operations and would also not result in any potential operations-related visual impacts that are outside the scope of impacts analyzed in the 2014 EIS. Accordingly, the data and analyses contained in the 2014 EIS remain substantially valid.

Water Resources (including Wetlands, Floodplains, Surface Waters, Groundwater, and Wild and Scenic Rivers)

There would be no impacts to wild and scenic rivers, as none are present in the project area. The increase in closure hours would not modify the layout of any SpaceX facilities, and would not result in changes to previously evaluated wetland impacts. The launch site is located within the 100-year floodplain. The 2014 EIS concluded that based on the expected notable adverse impacts on some of the natural and beneficial floodplain values, the Proposed Action would result in a significant floodplain encroachment per Department of Transportation Order 5650.2. In the 2014 EIS, the FAA determined there were no practicable alternatives that would totally avoid impacts to wetlands and floodplains. The increase in closure hours would not modify impacts to floodplains or wetlands. Accordingly, the data and analyses contained in the 2014 EIS remain substantially valid.

Cumulative Impacts

The 2014 EIS analyzed the environmental impacts of construction and operation of the Boca Chica Launch Site along with the potential environmental impacts of past, present, and reasonably foreseeable future actions. The increase in closure hours would not result in cumulative impacts that would be substantially different from those cumulative impacts analyzed in the 2014 EIS. Impacts associated with the increase in closure hours would not be expected to increase beyond those considered in the 2014 EIS. Accordingly, the data and analyses contained in the 2014 EIS remain substantially valid.

Conclusion

The 2014 EIS examined the potential environmental impacts and defined the regulatory setting associated with the FAA issuing launch licenses and/or experimental permits to SpaceX that would allow SpaceX to conduct launches of the Falcon 9 and Falcon Heavy orbital vertical launch vehicles and a variety of reusable suborbital launch vehicles from a private launch site on privately owned property in Cameron County, Texas. The 2014 EIS included constructing a Control Center Area and VLA. The areas evaluated for environmental impacts included air quality; biological resources (including fish, wildlife, and plants); climate; coastal resources; Department of Transportation Section 4(f); farmlands; hazardous materials, pollution prevention, and solid waste; historical, architectural, archaeological, and cultural resources; land use; natural resources and energy supply; noise and noise-compatible land use; socioeconomics, environmental justice, and children's environmental health and safety risks; visual effects (including light emissions); and water resources (including surface waters, groundwater, wetlands, floodplains, and wild and scenic rivers).

Based on the above review and in conformity with FAA Order 1050.1F, Paragraph 9-2.c, the FAA has concluded that SpaceX's proposed increase in operational closure hours conforms to the prior environmental documentation, that the data contained in the 2014 EIS remain substantially valid, that there are no significant environmental changes, and that all pertinent conditions and requirements of the prior approval have been met or will be met in the current action. Therefore, the preparation of a supplemental or new environmental document is not necessary to support the FAA's action.

Responsible FAA Official: DANIEL P MURRAY Digitally signed by DANIEL P MURRAY Location: Washington, D.C. Date: 2020.12.02 12:46:41 -05'00'

Location and Date Issued: _Washington, D.C., December 2, 2020___

References

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FAA. 2014b. Written Re-evaluation of the 2014 Final Environmental Impact Statement for the SpaceX Texas Launch Site. November.

FAA. 2017. Written Re-evaluation of the 2014 Final Environmental Impact Statement for the SpaceX Texas Launch Site. October.

FAA. 2019a. Written Re-evaluation of the 2014 Final Environmental Impact Statement for the SpaceX Texas Launch Site. May.

FAA. 2019b. Addendum to the Written Re-evaluation for SpaceX's Reusable Launch Vehicle Experimental Test Program at the SpaceX Launch Site. August.

FAA. 2019c. Second Addendum to the Written Re-evaluation for SpaceX's Reusable Launch Vehicle Experimental Test Program at the SpaceX Launch Site. November.

FAA. 2020a. Third Addendum to the Written Re-evaluation for SpaceX's Reusable Launch Vehicle Experimental Test Program at the SpaceX Launch Site. June

FAA. 2020b. Written Re-evaluation of the 2014 Final Environmental Impact Statement for the SpaceX Texas Launch Site.

Attachment 1. Section 4(f) Coordination