

**PROGRAMMATIC AGREEMENT  
AMONG  
THE FEDERAL AVIATION ADMINISTRATION,  
THE TEXAS STATE HISTORIC PRESERVATION OFFICER,  
NATIONAL PARK SERVICE,  
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION,  
SPACE EXPLORATION TECHNOLOGIES CORP.,  
UNITED STATES FISH AND WILDLIFE SERVICE, AND  
TEXAS PARKS AND WILDLIFE DEPARTMENT,  
REGARDING THE  
CONSTRUCTION AND OPERATION OF A SPACEX TEXAS LAUNCH SITE,  
CAMERON COUNTY, TEXAS**

**WHEREAS**, the Federal Aviation Administration (FAA) Office of Commercial Space Transportation plans to evaluate applications from Space Exploration Technologies Corp. (SpaceX) for launch licenses and/or experimental permits (as described in Attachment A) to conduct launches of the Falcon Program launch vehicles (Falcon 9 and Falcon Heavy) and a variety of reusable suborbital launch vehicles from a private launch site on privately owned property in Cameron County, Texas (the Project); and

**WHEREAS**, the Project would involve SpaceX constructing a vertical launch area and a launch control center on private property to launch vehicles from their private, exclusive space launch site in Cameron County, Texas, as described in Attachment A; and

**WHEREAS**, Project launch operations would involve the closure of the area approximately fourteen (14) to sixteen (16) miles west of the State Highway (SH) 4 terminus at Boca Chica Beach and Boca Chica State Park, as described in Attachment A and shown in Attachment A, Exhibit A-1, up to twelve (12) times a year for a period of up to fifteen (15) hours each time for the safety and security of the general public; and

**WHEREAS**, the FAA has determined the Project is a federal undertaking (Undertaking) subject to review under Section 106 of the National Historic Preservation Act (NHPA), 16 U.S.C. § 470f, and its implementing regulations, 36 Code of Federal Regulations (CFR) § 800; and

**WHEREAS**, this Programmatic Agreement (PA or Agreement) has been developed, pursuant to 36 CFR § 800.14(b), to govern the implementation of a program for the continued assessment of effects on historic properties and the resolution of adverse effects on historic properties, and this PA will govern completion of FAA's Section 106 compliance responsibilities; and

**WHEREAS**, the FAA, in consultation with the Texas State Historic Preservation Officer (SHPO) considered the potential direct, indirect, and cumulative effects of the Undertaking as provided in 36 CFR §§ 800.4(a) and 800.16(d) and established and inventoried an Area of Potential Effects (APE) for archaeological resources that encompasses the entire 50-acre vertical launch area as well as the three parcels (approximately 21 acres) that comprise the control center, and an APE for architectural resources, cultural landscapes, and viewsheds that encompasses a 5-mile radius centered on the vertical launch area (see Attachment B); and

**WHEREAS**, the FAA conducted archaeological and architectural investigations within the APEs to identify properties that are listed in or eligible for listing in the National Register of Historic Places (National Register) in consultation with the Texas SHPO and identified eleven (11) historic properties within the APEs; a complete listing of these historic properties is included as Attachment C in this Agreement; and

**WHEREAS**, the FAA has prepared the following reports in its evaluation of the effects of the proposed Project on historic properties: (1) *Environmental Impact Statement, SpaceX Texas Launch Site*; (2) *Final Archaeological Resources Investigation for the Proposed SpaceX Texas Launch Site, Cameron County, Texas*; and (3) *Final Architectural Survey for the Proposed SpaceX Texas Launch Site, Cameron County, Texas*, and these reports provide supporting information to this PA; and

**WHEREAS**, the FAA has determined that the Undertaking will have an adverse effect on properties listed in or eligible for listing in the National Register as discussed below, and has consulted with the Texas SHPO pursuant to 36 CFR § 800; and

**WHEREAS**, the FAA, in consultation with the Texas SHPO, determined the Undertaking will cause adverse effects to the Palmito Ranch Battlefield, a National Historic Landmark (NHL), due to the construction of the vertical launch and control center facilities and secondary (induced) impacts (described below) that could diminish the NHL's integrity of setting and feeling; and

**WHEREAS**, Section 110(f) of the NHPA specifies that for a Federal undertaking affecting an NHL, the Federal agency will "to the maximum extent possible, undertake such planning and actions as may be necessary to minimize harm" to the NHL; and

**WHEREAS**, one of the affected properties is the 1936 Centennial Marker for the Palmetto Pilings, which the FAA, in consultation with the Texas SHPO, determined is eligible for listing on the National Register and may be adversely affected by the Undertaking due to vibration from launch events and secondary (induced) impacts (described below); and

**WHEREAS**, two of the affected properties are the 1846 Cypress Pilings (41CF117.1) and the 1865 Palmetto Pilings (no number), which the FAA, in consultation with the Texas SHPO, determined are eligible for listing in the National Register; and

**WHEREAS**, one of the affected properties is the Pilings Camp Site (41CF117.2), which the FAA, in consultation with the Texas SHPO, determined would be treated as a National Register-eligible property; and

**WHEREAS**, the FAA, in consultation with the Texas SHPO, determined the Undertaking will cause adverse effects to the Palmito Ranch Battlefield, the 1936 Centennial Marker for the Palmetto Pilings, the 1846 Cypress Pilings (41CF117.1), the 1865 Palmetto Pilings (no number), and the Pilings Camp Site (41CF117.2) from secondary (induced) impacts as a result of increased vehicular traffic (i.e., fuel and water trucks) associated with the construction and

operation of the facility, as well as increased foot traffic and vehicular traffic from an anticipated influx in visitors to the area; and

**WHEREAS**, pursuant to this PA, SpaceX will prepare additional plans as outlined in Attachment D, in order to provide information for FAA to further assess effects and resolve adverse effects; and

**WHEREAS**, the FAA identified the Apache Tribe of Oklahoma, the Comanche Nation of Oklahoma, the Kiowa Tribe of Oklahoma, the Mescalero Apache Tribe of New Mexico, and the Tonkawa Tribe of Oklahoma as having religious or cultural affiliation with the Project area, and invited the tribes to participate in the Section 106 process and will continue to be consulted regarding assessments of effects and resolution of adverse effects resulting from actions taken as part of this Undertaking (see Attachment E for a summary of Tribal consultation); and

**WHEREAS**, the public has been provided opportunities to comment on the Project and participate in the Section 106 process, first in FAA's publication of the Notice of Intent in the *Federal Register* on 10 April 2012 (77 FR 21619), through a public scoping meeting on 15 May 2012 and a public hearing on 7 May 2013 as part of the National Environmental Policy Act process, and through a sixty (60) day review and comment period for the *Draft Environmental Impact Statement, SpaceX Texas Launch Site*, and the FAA has considered the public's comments in development of this Agreement; and

**WHEREAS**, the FAA received a number of comments from the public regarding cultural resources, and the public comments identified cultural and historic sites in the area and expressed concern for minimizing impacts to these sites; and

**WHEREAS**, the FAA invited the National Park Service (NPS), which administers the NHL Program, to participate in the consultation process as a consulting party pursuant to 36 CFR § 800.2(c)(5) by letter dated 18 June 2012, and has invited them as a Signatory to this Agreement; and

**WHEREAS**, the FAA did not identify other consulting parties pursuant to 36 CFR § 800.2(c)(5), and no individuals or organizations requested to the FAA to be a consulting party; and

**WHEREAS**, on 8 April 2014, the NPS transmitted a written request to the FAA for a written justification of the Section 106 Undertaking and APE for the Project, and the FAA provided a written response to the NPS on 21 April 2014; and

**WHEREAS**, the Palmito Ranch Battlefield NHL is located within land owned by the U.S. Fish and Wildlife Service (USFWS); therefore, the agency may need to grant access, permissions, or issue permits for measures outlined in this Agreement; and

**WHEREAS**, the FAA invited the USFWS to participate in consultation for this Undertaking by letter dated 10 May 2013, and USFWS is an Invited Signatory to this Agreement; and

**WHEREAS**, the 1936 Centennial Marker for the Palmetto Pilings, the 1846 Cypress Pilings (41CF117.1), the Pilings Camp Site (41CF117.2), and the 1865 Palmetto Pilings (no number), are located within Boca Chica State Park on land owned by the Texas Parks and Wildlife Department (TPWD) and leased to the USFWS; therefore, the TPWD may need to grant access, permissions, or issue permits to implement the procedures set forth in this Agreement; and

**WHEREAS**, the FAA invited the TPWD to participate in consultation for this Undertaking by letter dated 10 May 2013, and TPWD is an Invited Signatory to this Agreement; and

**WHEREAS**, in accordance with 36 CFR § 800.6(a)(1), the FAA has notified the Advisory Council on Historic Preservation (ACHP) of its adverse effect determination providing the specified documentation on 14 June 2012; and

**WHEREAS**, the FAA invited the ACHP to participate in consultation for this Undertaking pursuant to 36 CFR § 800.6(a)(1)(iii) by letter dated 28 June 2012, and ACHP decided to participate in consultation by letter dated 23 July 2012, and is a Signatory to this Agreement; and

**NOW, THEREFORE**, the FAA, Texas SHPO, NPS, ACHP, SpaceX, USFWS, and TPWD agree that the Undertaking will be implemented in accordance with the following Stipulations in order to take into account the effects of the Undertaking on historic properties:

## **STIPULATIONS**

The FAA will ensure the following measures are carried out:

### **I. PROFESSIONAL QUALIFICATIONS**

- a. All work conducted under this Agreement will be conducted by or under the direct supervision of professionals meeting the federal qualification standards in the discipline appropriate to the properties being treated (Archaeology for treatments of archaeological sites; History, Architectural History, and/or Historic Architecture for aboveground resources), as established by the Secretary of the Interior and published in 36 CFR Part 61, Appendix A.
- b. All engineering related work conducted under this Agreement will be conducted by a qualified professional engineer appropriate to the type of work specified.
- c. Standards, guidelines, and statutes. All cultural resource work conducted under this Agreement will be consistent with NHPA (16 U.S.C. § 470) and Texas Administrative Code Title 13, Part 2, Chapter 26 and conducted in accordance with the following standards, guidelines, and statutes as applicable:
  - i. The Secretary of the Interior: *Standards and Guidelines for Archeology and Historic Preservation* (1983) (48 FR 44716-44742), including the Standards for the Treatment of Historic Properties (1995);

- ii. Advisory Council on Historic Preservation: *Treatment of Archeological Properties: A Handbook* (1980), and the *ACHP Policy Statement Regarding Treatment of Burial Sites, Human Remains and Funerary Objects*, dated 23 February 2007; and
- iii. Texas Historical Commission: *Archeological Survey Standards for Texas* and Council of Texas Archeologists: *Guidelines for Cultural Resource Management Reports*.

## **II. TRIBAL CONSULTATION PROTOCOLS**

- a. The FAA will afford the Apache Tribe of Oklahoma, the Comanche Nation of Oklahoma, the Kiowa Tribe of Oklahoma, the Mescalero Apache Tribe of New Mexico, and the Tonkawa Tribe of Oklahoma the opportunity to review and comment on any draft plan or report associated with this Undertaking, including determinations of effects and the development of Memoranda of Agreement (MOAs) consistent with Stipulation V.
- b. The FAA will include in the Unanticipated Discoveries Plan described in Stipulation VI the protocols for notifying and consulting with tribes in the event of a discovery of human remains and/or funerary objects.

## **III. DEVELOPMENT, REVIEW, AND APPROVAL OF DOCUMENTS**

- a. Development, review, and approval of any draft plan or report associated with this Undertaking, including Launch Site Plans (listed in Attachment D) and the Unanticipated Discoveries Plan (described in Stipulation VI) will follow these procedures:
  - i. SpaceX has primary responsibility for developing and revising all plans identified in the Stipulations of this PA.
  - ii. The FAA will review all plans developed by SpaceX, and upon approval, the FAA will distribute drafts of all plans to the Signatories and Invited Signatories to this Agreement for review and comment. Signatories and Invited Signatories will have thirty (30) calendar days from the date of receipt to review and comment.
  - iii. Within the 30-day review period, the FAA will coordinate a meeting with the Signatories and Invited Signatories to this Agreement to facilitate comments on the plans. The FAA and SpaceX will take all comments into consideration when updating the plans. The FAA will share with all Signatories and Invited Signatories the comments of the others. Signatories and Invited Signatories may request the preparation of additional plans if the plans submitted fail to address specific potential effects to the identified historic properties.

- iv. The FAA will distribute the revised plans to the Signatories and Invited Signatories to this Agreement for review and comment. Signatories and Invited Signatories will have fifteen (15) calendar days from the date of receipt to review and comment.
- v. The FAA and SpaceX will take all comments into consideration when updating the revised plans. The FAA will coordinate a meeting with the Signatories and the Invited Signatories to resolve comments and review the updated plans. The FAA will share with all Signatories and Invited Signatories the comments of the others. If the FAA cannot resolve the comments, the FAA will follow the procedures under Stipulation X.b-d.
- vi. The FAA will submit a final draft version of each plan to the Signatories and Invited Signatories to this Agreement for a five (5) business day review and written concurrence. If no written concurrence is received from the Signatories or Invited Signatories by the end of the 5-day review period, the FAA will proceed on the final draft version.
- vii. The FAA will notify the Signatories and Invited Signatories of approval of any plans, and will provide copies of the final versions to Signatories and Invited Signatories.
- viii. SpaceX has primary responsibility for implementation of approved plans, and the FAA has responsibility for the oversight of these actions.
- ix. SpaceX is responsible for any additional permits and compliance (Federal, State, and local) beyond the authority of the PA.

#### **IV. ASSESSMENT OF EFFECTS**

- a. The FAA will assess the effects on historic properties in the APE from implementing the actions specified in any plan associated with this Undertaking. The effects assessment will apply the Criteria of Adverse Effect, as described at 36 CFR § 800.5(a)(1).

Review process:

- i. The FAA will present the determination of effects for each plan in a cover letter and distribute it with the associated plan to all Signatories and Invited Signatories to this Agreement for review and comment. The cover letter will include documentation that evidences how the FAA considered avoidance and minimization alternatives prior to making a final effect determination. Signatories and Invited Signatories will have thirty (30) calendar days from the date of receipt to review and comment.

- ii. Within the 30-day review period, the FAA will coordinate a meeting with the Signatories and Invited Signatories to this Agreement to facilitate comments on the determinations of effects. The FAA will share with all Signatories and Invited Signatories the comments of the others.
  - iii. The FAA and SpaceX will take all comments into consideration. The FAA will coordinate a meeting with the Signatories and the Invited Signatories to resolve an objection to an effects determination. If the FAA cannot resolve the objection, the FAA will follow the procedures under Stipulation X.b–d.
  - iv. For each plan, the FAA will submit a final determination of effects in a cover letter with the final draft version of the associated plan to the Signatories and Invited Signatories to this Agreement for a five (5) business day review and written concurrence. If no written concurrence is received from the Signatories or Invited Signatories by the end of the 5-day review period, the FAA will proceed on the determination of effects.
  - v. If any Signatories and Invited Signatories provide the FAA with a written objection regarding a No Adverse Effect determination within the 5-day review period, the FAA will consult with the Signatories to resolve the objection. If the FAA cannot resolve the objection, the FAA will follow the procedures under Stipulation X.b–d.
- b. If the FAA determines, through consultation, that an effect will be adverse, the FAA will resolve adverse effects to historic properties in accordance with the procedures under Stipulation V.

## **V. RESOLUTION OF ADVERSE EFFECTS**

- a. Adverse effects would be resolved through the consultation process outlined in 36 CFR § 800.6.
  - i. The FAA will consult with the Signatories, Invited Signatories and other consulting parties recognized by the FAA to seek ways to avoid or minimize adverse effects.
  - ii. After avoidance and minimization measures are agreed to by the Signatories and Invited Signatories, if an adverse effect remains, the FAA will execute an MOA(s) with the Signatories and Invited Signatories to document mitigation measures.
  - iii. The FAA will submit a copy of any executed MOA to the ACHP.
  - iv. The FAA will ensure that the Undertaking is carried out in accordance with the MOA(s).

## **VI. POST-REVIEW DISCOVERIES**

- a. Prior to the start of construction activities, SpaceX will develop an Unanticipated Discoveries Plan that will specify the exact procedures to be followed in the event that previously unidentified properties are discovered or unanticipated effects on historic properties are identified during implementation of the Project. The Unanticipated Discoveries Plan will be developed in consultation as described under Stipulation III.

## **VII. COORDINATION WITH OTHER FEDERAL REVIEWS**

- a. In the event that SpaceX applies for federal funding or approvals for the Undertaking from another agency and the Undertaking remains unchanged, such funding or approving agency may comply with Section 106 by agreeing in writing to the terms of this Agreement and notifying and consulting with Texas SHPO and ACHP. Any necessary modifications will be considered in accordance with Stipulation XI.

## **VIII. PROJECT CHANGES**

- a. The FAA will not change the Undertaking without first affording the parties (refer to Attachment F) to this Agreement the opportunity to review the proposed change and determine whether it will require revisions be made to this Agreement. If revisions are needed, the FAA will consult in accordance with Stipulation XI to make such revisions.

## **IX. MONITORING AND REPORTING**

- a. Each year following the execution of this Agreement, the FAA will provide the Signatories and Invited Signatories an annual report detailing work undertaken pursuant to its terms. The FAA will distribute the report to all parties (refer to Attachment F) to this Agreement at least fifteen (15) calendar days prior to the Annual Meeting (described below).
  - i. The annual report will include scheduling changes proposed, any problems encountered, and any disputes and objections received in FAA's efforts to carry out the terms of this Agreement.
  - ii. The annual report will include a section to be prepared by SpaceX of activities as they relate to compliance with the stipulations of this Agreement. The annual report will include the following:
    - 1) A description of the past year's efforts and anticipated upcoming efforts for identification, evaluation, mitigation, and protection of historic properties.
    - 2) An evaluation of the progress of mitigation activities.
    - 3) A description of any known or expected changes to the Undertaking.



- b. Annual Meeting: For the life of this Agreement, the FAA will coordinate a meeting of the Signatories and Invited Signatories to be held each year in February or March, or another mutually agreed upon date, to discuss activities carried out pursuant to this Agreement during the preceding year and activities scheduled for the upcoming year.
  - i. The FAA will evaluate the effectiveness of this Agreement and whether any amendments or changes are needed based on SpaceX's progress reports or project modifications and provide its evaluation to Signatories and Invited Signatories prior to the Annual Meeting.
  - ii. The meeting will be held in a location agreed upon by consensus of the Signatories and Invited Signatories, and parties may participate by telephone if they so desire. The FAA will distribute minutes of the meeting to all Signatories and Invited Signatories within two weeks of the meeting.

## **X. DISPUTE RESOLUTION**

- a. Should any Signatory or Invited Signatory object to any plans or actions pursuant to this Agreement or the manner in which the terms of this Agreement are implemented, the objecting party will provide written notice to the FAA. The FAA will take the objection into account and consult, as needed, within ten (10) business days with the Signatories and Invited Signatories to resolve the objection. Copies of written objections will be submitted simultaneously to all Signatories.
- b. If the FAA determines that the objection cannot be resolved, the FAA will forward all documentation relevant to the dispute to the ACHP and request that the ACHP provide its advice on the resolution of the objection. The ACHP will provide the FAA with its advice on the resolution of the objection within thirty (30) calendar days of receiving adequate documentation.
- c. The FAA will prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP, Signatories, and Invited Signatories and provide them with a copy of this written response. The FAA will then proceed according to its final decision.
- d. Any ACHP comment provided in response to such a request will be taken into account by the FAA, in accordance with 36 CFR § 800.6(c)(2), with reference only to the subject of the dispute. All responsibilities to carry out actions under this Agreement that are not subject to the dispute will remain unchanged.

## **XI. DURATION, AMENDMENT, AND TERMINATION**

- a. This Agreement will become effective upon execution by the FAA, Texas SHPO, NPS, ACHP, SpaceX, USFWS, and TPWD, and will remain in effect for a term of

ten (10) years from its date of execution, at which time the FAA or SpaceX may seek to extend this Agreement for an additional period of time.

- b. Any Signatory or Invited Signatory to this Agreement may request the other Signatories and Invited Signatories consider amending it, in which case the parties will consult to consider the proposed amendment(s). The amendment will be effective on the date a copy is signed by all of the Signatories and Invited Signatories.
- c. If any Signatory or Invited Signatory to this Agreement determines that its terms will not or cannot be carried out, that party will immediately consult with the other parties to attempt to develop an amendment per Stipulation XI.b. If within thirty (30) calendar days (or another time period agreed to by all Signatories) an amendment cannot be reached, any Signatory or Invited Signatory may terminate the Agreement upon written notification to the other Signatories and Invited Signatories.
- d. A year prior to the expiration of the Agreement, the Signatories and Invited Signatories will consult to determine whether the Agreement should be extended for a period to be determined. If the term of the Agreement is not extended through an amendment, then the Agreement will expire at the end of the duration period set forth in Stipulation XI.a.
- e. Once the Agreement is terminated, and prior to work continuing on the Undertaking, the FAA must either execute a new Agreement pursuant to 36 CFR § 800.6, or request, take into account, and respond to the comments of the ACHP under 36 CFR § 800.7. The FAA will notify the Signatories and Invited Signatories as to the course of action it will pursue.

Execution of this Agreement by the FAA, Texas SHPO, NPS, ACHP, SpaceX, USFWS, and TPWD, and implementation of its terms by the Signatories and Invited Signatories, is evidence the FAA has taken into account the effects of the Undertaking on historic properties.

**SIGNATORIES**

**FEDERAL AVIATION ADMINISTRATION**

By: \_\_\_\_\_

Dr. George C Nield

Associate Administrator for Commercial Space Transportation

Date: \_\_\_\_\_

5/13/2014

**TEXAS STATE HISTORIC PRESERVATION OFFICER**

By: Mark Wolfe  
Mark Wolfe

Date: 5/12/14

NATIONAL PARK SERVICE

By: *Jana C. Joss*  
Acting for Sue E. Masica, Director, Intermountain Region

Date: *May 22, 2014*

**ADVISORY COUNCIL ON HISTORIC PRESERVATION**

By: John M. Fowler

John M. Fowler  
Executive Director

Date: 5/16/14

**INVITED SIGNATORIES**

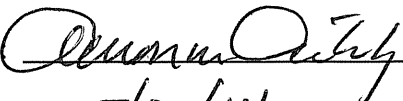
**SPACE EXPLORATION TECHNOLOGIES CORP.**



By: \_\_\_\_\_  
Steven Davis  
Director of Advanced Projects, Space Exploration Technologies

Date: May 15, 2014\_\_\_\_\_

**UNITED STATES FISH AND WILDLIFE SERVICE**

By  **Aaron M. Archibeque**  
**Regional Chief, NWRS**

Date: 5/30/14



**TEXAS PARKS AND WILDLIFE DEPARTMENT**

By: \_\_\_\_\_

Ross Melinchuk, Deputy Executive Director- Natural Resources

Date: May 20, 2014

## **ATTACHMENT A. PROJECT DESCRIPTION**

As part of FAA's Proposed Action of issuing launch licenses and/or experimental permits to SpaceX, SpaceX would construct a vertical launch area and a control center area to support up to 12 commercial launch operations per year. The vehicles that would be launched include the Falcon 9, Falcon Heavy (up to two launches per year), and a variety of smaller reusable suborbital launch vehicles. Launch operations include not only launches, but also pre-flight activities such as mission rehearsals and static fire engine tests. SpaceX would be required to apply for the appropriate launch licenses and/or experimental permits to be issued by the FAA. SpaceX would be the exclusive user of the site.

The proposed vertical launch area is currently undeveloped and is located directly adjacent to the eastern terminus of SH 4 (Boca Chica Boulevard) and to Boca Chica State Park and Lower Rio Grande Valley National Wildlife Refuge lands. It is located approximately 3 miles north of the U.S/Mexico border on the Gulf Coast and approximately 5 miles south of Port Isabel and South Padre Island. Access to the area is from SH 4. Proposed facility and infrastructure construction at the vertical launch area would include an integration and processing hangar; a launch pad and stand with its associated flame duct; a water tower; lightning protection towers (four total); a retention basin for deluge water; propellant storage and handling areas; a workshop and office area; a warehouse for parts storage; and roads, parking areas, fencing, security, lighting, and utilities. The parcel where the vertical launch area would be located is 56.5 acres; however, development of the vertical launch area would only comprise approximately 20 acres.

The proposed control center would be located immediately adjacent to Boca Chica State Park and Boca Chica Village, approximately 2 miles west of the proposed vertical launch area and north of SH 4. Proposed facility and infrastructure construction at the control center area would include two launch control center buildings; two payload processing facilities; a launch vehicle processing hangar; two radio frequency transmitter/receivers; generators and diesel storage facilities; roads, parking areas, fencing, security, lighting, utilities; and a satellite fuels storage facility. In addition, new power lines would be installed underground in the SH 4 road right-of-way from the control center area to the vertical launch area.

The Falcon 9 is a medium-lift class launch vehicle with a gross lift-off weight of approximately 1,100,000 pounds (lbs) with an approximate length of 224 feet (ft). The Falcon 9 uses liquid oxygen (LOX) and highly refined kerosene, also known as rocket propellant-1 or refined petroleum-1 (RP-1), as propellants to carry payloads into orbit. The Falcon Heavy is a heavy-lift class launch vehicle with a gross lift-off weight of approximately 3,400,000 lbs. It has a width of 36 ft and an overall length of approximately 224 ft.

All Falcon 9 and Falcon Heavy launches would be expected to have payloads, including satellites or experimental payloads. In addition to standard payloads, the Falcon 9 and Falcon Heavy may also carry a capsule, such as the SpaceX Dragon capsule. Most payloads would be commercial; however, some could be Department of Defense payloads, National Aeronautics and Space Administration (or NASA) payloads, or a Federal contribution to a commercial payload. All launch trajectories would be to the east over the Gulf of Mexico.

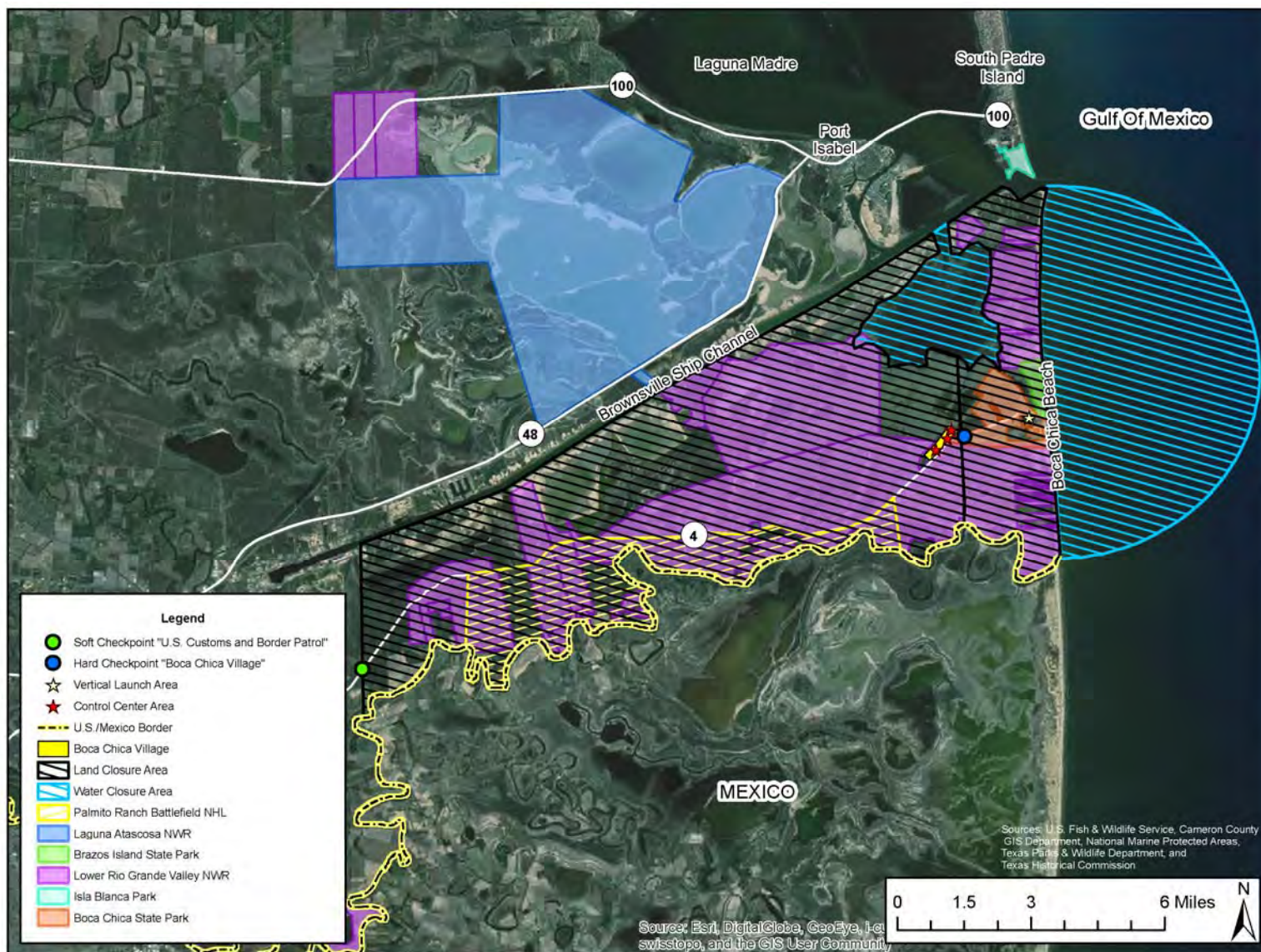
During launch operations, access to the Boca Chica area, including SH 4 and Boca Chica State Park, would be closed to the general public for safety and security reasons (refer to Exhibit A-1). The closures would occur up to 12 times a year for a period of up to 15 hours each time, with 6 hours being the closure time for a nominal launch. The 15-hour closure period allows for potential aborts and contingencies. A closure for a wet dress rehearsal or static fire engine test would be shorter than a closure for a launch. Closures for a wet dress rehearsal or static fire engine test would typically be 3 hours or less. The total number of closures and closure hours for wet dress rehearsals, static fire engine tests, and actual launches would fall within SpaceX's proposed 12 launch operations per year or annual maximum of 180 hours of closure per year.

## **FAA LICENSES, PERMITS, REGULATIONS, AND APPROVALS**

The FAA statutory and regulatory requirements pertaining to commercial launches and individual launch operators are described in 14 CFR Chapter III, Parts 400-450. Under the Proposed Action, SpaceX would be the exclusive user of the site. Therefore, SpaceX is not required to apply for and obtain a Launch Site Operator License (14 CFR Part 420). SpaceX could apply for and obtain the following types of licenses and/or experimental permits:

- Launch-Specific License — “authorizes a licensee to conduct one or more launches, having the same launch parameters, of one type of launch vehicle from one launch site” (14 CFR §Part 415.3[a]). A licensee's authorization to launch terminates upon completion of all launches authorized by the license or the expiration date stated in the license, whichever occurs first.
- Launch Operator License — “authorizes a licensee to conduct launches from one launch site, within a range of launch parameters, of launch vehicles from the same family of vehicles transporting specified classes of payloads” (14 CFR §Part 415.3[b]). A launch operator license remains in effect for five years from the date of issuance.
- Experimental Permit — “authorizes launch and reentry of a reusable suborbital rocket” (14 CFR §Part 437.7). An experimental permit lasts for one year from the date it is issued.

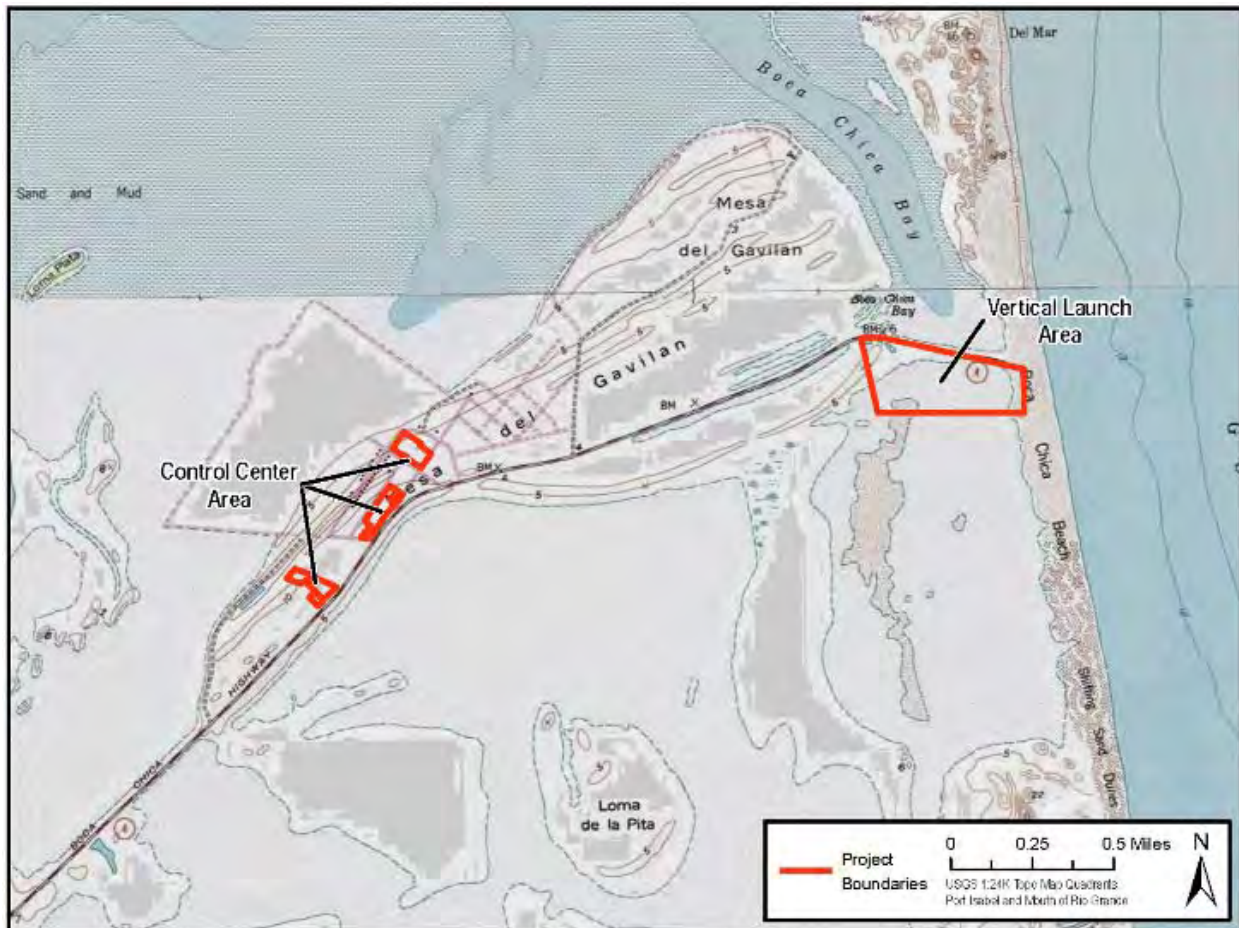
Only those activities and operations under the Proposed Action would be authorized and governed by the FAA through the above licenses and permit. These activities and operations include: construction of a vertical launch area and a control center area; operations to support up to 12 launches per year, including the temporary closure of designated offshore and onshore areas; and the underground installation of a new power line in the right-of-way of SH 4 between the vertical launch and control center areas.



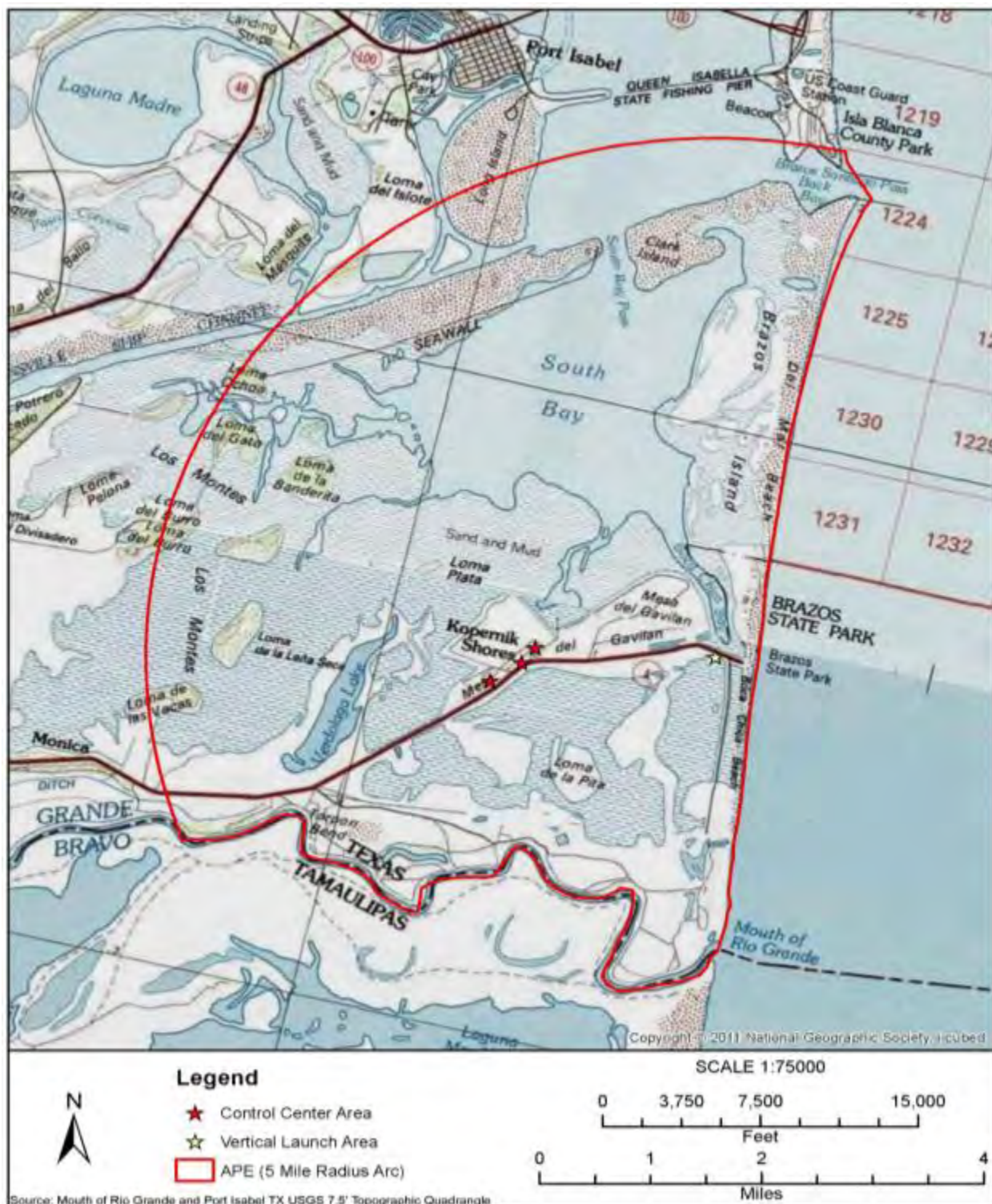
**Exhibit A-1. Proposed Launch Operations Closure Areas**



## ATTACHMENT B. AREA OF POTENTIAL EFFECTS



**Exhibit B-1. Area of Potential Effects for Direct Effects**



**Exhibit B-2. Area of Potential Effects for Indirect Effects**

# ATTACHMENT C. HISTORIC PROPERTIES IDENTIFIED IN THE DIRECT AND INDIRECT APEs

Summary Table of Historic Properties Identified in the APEs for the SpaceX Texas Launch Site.							
Resource #	Resource Name	Site Type	National Register Eligibility	Historic Value	FAA Determination of Effect <sup>1</sup>		
					Direct	Indirect	Secondary (Induced)
41CF93	Palmito Ranch Battlefield NHL	Civil War Battlefield	Listed; Designated an NHL	Landscape, setting, and feeling that contribute to the integrity and interpretation of the site; intact physical remains (e.g., features, artifacts, datable materials), including potential subsurface remains	No effect	Adverse effect from visual intrusions to setting and feeling associated with construction	Adverse effect from increased vehicular traffic (i.e., fuel and water trucks) associated with the construction and operation of the facility, as well as from increased foot and vehicular traffic associated with anticipated influx in visitors to the area
41CF4	Brazos Santiago Depot	1840-1870 Military depot and camp	Listed	Intact physical remains (e.g., features, artifacts, datable materials), including potential subsurface remains	No effect	No effect	No effect
41CF6	White's Ranch	Civil War camp	Eligible	Intact physical remains (e.g., features, artifacts, datable materials), including potential subsurface remains	No effect	No effect	No effect

<b>Summary Table of Historic Properties Identified in the APEs for the SpaceX Texas Launch Site.</b>							
<b>Resource #</b>	<b>Resource Name</b>	<b>Site Type</b>	<b>National Register Eligibility</b>	<b>Historic Value</b>	<b>FAA Determination of Effect<sup>1</sup></b>		
					<b>Direct</b>	<b>Indirect</b>	<b>Secondary (Induced)</b>
41CF7	Clarksville	1847-1874 Townsite	Eligible	Intact physical remains (e.g., features, artifacts, datable materials), including potential subsurface remains	No effect	No effect	No effect
41CF19	--	Prehistoric camp	Potentially Eligible	Intact physical remains (e.g., features, artifacts, datable materials), including potential subsurface remains	No effect	No effect	No effect
41CF117.1	Cypress Pilings	1846 Floating bridge pilings	Eligible	Intact physical remains (e.g., features, artifacts, datable materials)	Potential adverse effect from vibration associated with launch operations	No effect	Adverse effect from increased foot and vehicular traffic associated with anticipated influx in visitors to the area
41CF117.2	Pilings Site	Historic campsite	Treated as Eligible	Intact physical remains (e.g., features, artifacts, datable materials)	No effect	No effect	Adverse effect from increased foot and vehicular traffic associated with anticipated influx in visitors to the area
41CF125	Boca Chica Beach Wreck	Shipwreck	Potentially Eligible	Intact physical remains (e.g., features, artifacts, datable materials), including potential subsurface remains	No adverse effect	No effect	No effect



<b>Summary Table of Historic Properties Identified in the APEs for the SpaceX Texas Launch Site.</b>							
<b>Resource #</b>	<b>Resource Name</b>	<b>Site Type</b>	<b>National Register Eligibility</b>	<b>Historic Value</b>	<b>FAA Determination of Effect<sup>1</sup></b>		
					<b>Direct</b>	<b>Indirect</b>	<b>Secondary (Induced)</b>
41CF184	Boca Chica #2	Shipwreck	Potentially Eligible	Intact physical remains (e.g., features, artifacts, datable materials), including potential subsurface remains	No adverse effect	No effect	No effect
No number	Palmetto Pilings	1865 Railroad Pilings	Eligible	Intact physical remains (e.g., features, artifacts, datable materials)	Potential adverse effect from vibration associated with launch operations	No effect	Adverse effect from increased foot and vehicular traffic associated with anticipated influx in visitors to the area
No number	Palmetto Pilings Historical Marker	1936 Granite Marker	Eligible	Associated with the long-standing tradition and one of the largest formal programs of commemoration in the state of Texas	Potential adverse effect from vibration associated with launch operations	No adverse effect	Adverse effect from increased foot and vehicular traffic associated with anticipated influx in visitors to the area

*Note:* 1 Direct Effect = impacts that would have an immediate effect on the physical character of a property, and are primarily associated with construction activities; Indirect Effect = impacts such as visual or auditory that affect more aesthetic aspects of a historic property (e.g., setting); Secondary (Induced) Effect = impacts that are caused by the Undertaking, but occur later in time and/or farther removed in distance, but are foreseeable.

## **ATTACHMENT D. SPACE X TEXAS LAUNCH SITE PLANS**

1. In collaboration with the FAA, SpaceX is developing the following plans:
  - a. Lighting Management Plan
  - b. Facility Design Plan
  - c. Vibration Monitoring Plan
  - d. Unanticipated Discoveries Plan
  - e. Hurricane Plan
  - f. Construction Stormwater Pollution Prevention Plan
  - g. Operation Stormwater Pollution Prevention Plan
  - h. Spill Pollution and Prevention Plan
  - i. Hazardous Materials Emergency Response Plan
  - j. Emergency Action Plan
  - k. Security Plan

## **ATTACHMENT E. SUMMARY OF TRIBAL CONSULTATION AND INVOLVEMENT DURING ENVIRONMENTAL IMPACT STATEMENT DEVELOPMENT AND SECTION 106 PROCESSES FOR THE PROPOSED SPACEX TEXAS LAUNCH SITE**

The FAA identified the following five tribes as having religious or cultural affiliation with the Project area: Apache Tribe of Oklahoma, Comanche Nation of Oklahoma, Kiowa Tribe of Oklahoma, Mescalero Apache Tribe of New Mexico, and Tonkawa Tribe of Oklahoma. The FAA provided each of them with the following information and opportunities to participate in the Section 106 process:

- The FAA sent consultation letters (dated 2 May 2012) describing the Undertaking and inviting tribes to participate in consultation. The FAA received no response from any of the tribes.
- The FAA sent the *Draft Environmental Impact Statement, SpaceX Texas Launch Site* inviting tribes to comment on the findings of effects on cultural resources. The FAA received no response from any of the tribes.

## **ATTACHMENT F: CONSULTING PARTY CONTACTS**

For the life of this Agreement, each party will provide updates to the list of contacts below, as needed, to the FAA. The FAA will distribute the updated list of contacts to all parties within five (5) business days of receipt of the update.

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