



United States Department of the Interior



OFFICE OF THE SECRETARY
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ER 18/0130
9043.1

June 12, 2018

Ms. Stacey M. Zee
Environmental Specialist
Federal Aviation Administration
2109 Air Park Road, SE, Suite 200
Albuquerque, NM 87106

Re: Comments and Recommendations on the Draft Environmental Impact Statement (EIS)
for the Proposed Issuance of a Launch Site Operator License to the Camden County
Board of Commissioners, Georgia

Dear Ms. Zee:

The U.S. Department of the Interior (Department) has reviewed the Draft Environmental Impact Statement (DEIS) for the Proposed Issuance of a Launch Site Operator License to the Camden County Board of Commissioners, Georgia. We offer the following comments for your consideration:

Section 4(f)

The Department's biggest concerns are related to the use of Cumberland Island National Seashore (CUIS) and potential adverse impacts to the park associated with future operations of Spaceport Camden. Based on our review of the DEIS, the conclusions related to use of Section 4(f) resources are not substantiated. Section 4.5.1.2 of the DEIS states, "*At the time when individual launch licenses are applied for, FAA will evaluate the potential for restrictions in access and closures for parks and recreational areas that qualify for protection under Section 4(f) to result in a constructive use of the properties. Further coordination with officials with jurisdiction over the properties will occur at that time in order to arrive at a constructive use determination.*" Furthermore, Section 4.5.1.2 states that, "*...the Proposed Action would not result in the permanent incorporation or temporary occupancy of Section 4(f) properties.*" The document states, "*The potential for constructive use to occur as a result of closures or restricted access to parks and recreational areas is not evaluated in this analysis*" and cites that additional specific information is required about the individual launches that may take place at the proposed launch site.

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23 CFR 774.15 (e) states: "...that a Constructive Use occurs when.

(3) The project results in a restriction of access which substantially diminishes the utility of a significantly publicly owned park, recreational area, or historic site;"

In addition, all of the conditions listed below from 23 CFR 774.13(d) must be satisfied to not constitute a Section 4(f) temporary occupancy use:

- (1) Duration must be temporary, i.e., less than the time needed for construction of the project, and there should be no change in ownership of the land;
- (2) Scope of the work must be minor, i.e., both the nature and the magnitude of the changes to the Section 4(f) property are minimal;
- (3) There are no anticipated permanent adverse physical impacts, nor will there be interference with the protected activities, features, or attributes of the property, on either a temporary or permanent basis;
- (4) The land being used must be fully restored, i.e., the property must be returned to a condition which is at least as good as that which existed prior to the project; and
- (5) There must be documented agreement of the official(s) with jurisdiction over the Section 4(f) resource regarding the above conditions."

The DEIS provides sufficient detail that the proposed action would directly, indirectly, and cumulatively adversely affect CUIS in ways that should be considered both a long-term constructive use of the park and a temporary occupancy in the least. The United States Congress designated the CUIS' Wilderness Area in 1982, and it now has a total of 9,886 acres of designated wilderness and 10,500 acres of potential wilderness. Designated Wilderness is the highest level of conservation protection for Federal lands. The proposed launch trajectory would be directly over the CUIS Wilderness Area and have significant impacts to the wilderness character of this area due to increased noise, lighting and other man-made intrusions associated with spaceport operations.

Furthermore, the DEIS describes a number of operational disruptions and impacts to CUIS residents, staff and visitors associated with spaceport operations. These include the potential mandatory displacement of all non-authorized personnel, visitors and residents within the flight trajectory during launch activities, as well as the cessation of all legislatively mandated tours of CUIS, particularly those transporting visitors to and from the historic sites located adjacent to Wilderness in the northern part of the island. Construction activities and spaceport operations will also likely have an adverse effect on CUIS historic properties. It is the opinion of the officials with jurisdiction that these cited Section 4(f) uses would occur at CUIS, and there is not concurrence that the provisions of 23 CFR 774.13(d) have been satisfied due to these adverse impacts to the purpose for which CUIS was established and recognized as a Section 4(f) property.

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Cumberland Island National Seashore

Executive Summary

1. The Final EIS should better define who constitutes “authorized persons” as described throughout the document. For example, who makes the final decision as to who are authorized persons? The issue of “authorization” also raises questions related to liability for that designation to both individuals and organizations. Should an accident occur, who is liable for potential injuries, fatalities, and/or property loss & damage for the authorized persons? Is the determination of liability supported or contradicted by any Federal and/or State laws and regulations? How does this liability correspond with recently enacted Georgia legislation regarding space launch activities? This needs to be further defined and addressed throughout the Final EIS.
2. Who is responsible for removing/enforcing potentially unauthorized persons, namely private residents and visitors, from Cumberland Island? What is the envisioned role and responsibility of the National Park Service (NPS) during operations, pre-launch and closure activities?
3. The NPS requests the ability to review the results of the Risk Analysis/Safety Review conducted by the FAA as part of the Launch Site Operator License application review. NPS also requests ability to review any Risk Analysis/Safety Review done in conjunction with each Launch Operator License application review.

Table ES-1

1. Land Use – Based on the nature of sky glow, it would not likely be limited to west shoreline areas only. Open areas, particularly the eastern shoreline and northern shorelines, could be affected by sky glow from spaceport operations. The northwestern shoreline would also be affected by visual intrusion. The Final EIS should address this specifically in both the Executive Summary and associated impacts sections.
2. Visual Effects – NPS questions that Spaceport elements would “...*not be dominant in the viewshed from the western shoreline of the wilderness area*”. Standing at the Brickhill Bluff Campsite and looking to the west the only thing one currently sees (that is not natural) is one tower to the distant southwest, a distant white dot to the northwest that may be the dock area on the Bayer Crop Science property, and the occasional boat. While Spaceport facilities may not be a large percentage of the viewshed they will certainly be a focal point and noticeable new intrusion into the viewshed from this area.
3. Historical, Architectural, Archaeological and Cultural Resources - The statement, “These temporary effects to historic properties’ setting are unlikely to result in any adverse effect or significant impact to cultural resources.” NPS disagrees with this conclusion. The cultural landscape runs the entire length of the island and overlaps with the Area of Potential Effects (APE) for audible and visual effects. The historic setting (location, viewshed) of the National Register-listed and eligible districts and resources on CUIS is a significant feature of these designations with a high degree of integrity. The permanent

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facilities will adversely impact this setting. The soundscape is also a significant feature of these historic properties. The character and intensity of the noise resulting from the launches is in contradiction to the current setting.

Section 2.1 - Proposed Action

1. Page 2-34, Line 21 - Given the percentages of failure at 2.5% to 6% and 12 launches proposed annually, this appears to be a calculated failure rate of once every 3.33 years on the low end and once every 1.4 years on the high end. NPS recommends describing the data in this manner in the Final EIS.
2. Page 2-34, Line 30 - Analysis of various exhibits in previous sections of the EIS seems to indicate that the launch pad is well short of the 10,600 foot distance required from the launch site boundary. Please describe if this is accurate and more importantly, the effect of not apparently meeting this standard as it relates to safety.
3. Page 2-35, Line 5 - There is no mention of the potential for flaming debris to fall on land. What is the likelihood for this type of catastrophic event and the associated impacts? This should be addressed in the Final EIS.

Section 3.2 - Biological Resources

1. Page 3-13, Lines 1-5 - Marsh grasses are the dominant plants in nearby tidal marshes and have been completely left out of the text. Recommend additional description of this important habitat in the Final EIS and suggest further investigation of the critical role of salt marsh as EFH and any potential impacts from spaceport construction and operations.
2. Table 3.2-2 - There is no explanation in the Notes as to what “C” represents.
3. Page 3-15, Line 37 - Should it be Exhibit 3.2-3 and not 3.2-2?

Section 3.5 - Department of Transportation Act, Section 4(f)

1. Page 3-36, Line 1 - Section states, “...*private ferries carry people and vehicles to the island...*” It should be characterized as “...*private operators carry island residents, their vehicles, and/or guests to the island...*”
2. Page 3-37, Line 36 - Open 365 days a year and not 356.

Section 3.8 - Historical, Architectural, Archaeological, and Cultural Resources

1. Page 3-61, Lines 1-2 - The statement, “...*the north end of Cumberland Island, lies within the APE for audible and visual effects; no archeological resources have been documented in this area of the APE.*” is incorrect. Archeological resources, including Fort St. Andrews have been documented. Please include this information and potential for impacts in the Final EIS.

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2. Page 3-61, Line 21 - Mocama is spelled incorrectly

Section 3.12 - Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks

1. Page 3-82, Line 14 - Current camping capacity at Sea Camp is 96 with an additional 20 people at each of the two group sites there. Thus, there is a capacity of 136 at Sea Camp Campground. Capacity at each of the other four campsites is 24.
2. Page 3-82 - The legislatively mandated (Public Law 108-447, 118 Stat. 3072 (December 8, 2004)) Lands & Legacies Tours should also be discussed in current conditions as it includes the north end of the island and will be adversely impacted by any closures. It should also be addressed in the subsequent Environmental Consequences section(s). The NPS, through a concessioner, currently offers daily Lands & Legacies Tours, carrying 12 visitors on each trip. The NPS is authorized to provide as many as eight of these tours daily. The tours include stops at Plum Orchard, the Cumberland Wharf, and the Settlement. Tour reservations can be made up to six months in advance. This is a significant visitor experience and socioeconomic impact that must be assessed in the Final EIS.
3. Page 3-82, Line 18 - In accordance with Georgia Department of Natural Resources regulations, the hunts are scheduled up to two years in advance. NPS supports inclusion of the mitigation measure in Chapter 6 that addresses potential impacts to these hunts.

Section 3.13 - Visual Effects

1. Page 3-82, Lines 4-5 - Removing vegetation from the equation skews the accuracy and quality of the viewshed analysis, particularly when taking into account Cumberland Island and wilderness where vegetation will always be present. Furthermore, removing vegetation does not accurately depict the Current Conditions. The method of bare earth analysis is further confused by the regular discussion of vegetation in the table. This should be discussed and potentially corrected in the updated analysis for the Final EIS.
2. Page 3-89, Line 28 - Within the text of the Final EIS, please describe the process used to select sites. Given the current research on ALAN (artificial lights at night) effects to both human and animal health, please include a discussion of potential impacts to human health and wildlife from increases in light at night from the facility. This can be included in the visual effects section or in the section on wildlife and human impacts.
3. Table 3.13-1 - Brickhill Bluff - Lines 5-6. The description of the current viewshed conditions is not accurate. The housing enclaves at Cabin Bluff and elsewhere are only visible at night and visibility is low. Jekyll Island is not visible at all, which is a flaw introduced by removing vegetation from the analysis. This should be corrected in the Final EIS.

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4. Page 3-100, Lines 1-2 - NPS finds the assessment inaccurate due to the bare earth analysis as discussed in our previous comment.
5. Page 3-100, Line 14 - Adjective “fairly” should be removed. Exhibit 3.13-3 identifies the views as “unobstructed”, which is accurate.

Section 4.1 - Air Quality

1. Page 4-3, lines 12 and 15 - Unlikely is a term that does not match with the failure rates described on page 2-34 used to describe launch failures and more importantly the impacts from any potential launch failures. Failures have occurred throughout the history of space flight and they are likely to occur again.

Section 4.2 - Biological Resources

1. Page 4-8, Line 16 - The second most impacted habitat is maritime forest. This should be considered as suitable or optimal wildlife habitat.
2. Page 4-15, Lines 6-8 - Why are the reactions of feral horses discussed as opposed to native species such as deer? There does not appear to be any specific analysis of spaceport operations impacts to biological resources in this section. The analysis of terrestrial animal response should not be based on one isolated, 1:17 video from YouTube as cited in this section. Feral horse and other terrestrial animal reactions to stimuli vary up and down the island based on a number of factors including amount of exposure to people, vehicles, aircraft, etc. There is a dramatic difference in noise exposure from landing and takeoff of small planes to sonic booms, launches and other tests associated with spaceport operations. This should be addressed in the Final EIS.
3. Page 4-20, Lines 20-22 - The potential effects are likely underestimated and appear to contradict what is later stated in lines 28-29. Depending on the intensity of the fire and the (vegetative) fuel loads & types, the impacts of a fire will vary and may include complete stand replacement or habitat alteration as an impact. This can be managed to some degree and should be addressed in the Final EIS.

Section 4.4. - Coastal Resources

1. Page 4-25, Lines 18-21 - While the construction areas would not directly impact CUIS, construction activities would indirectly impact the park due to noise from machinery, vehicles, horns, and especially pile-driving activities. Please add text in the Final EIS describing that for visitors to the seashore during the 5-month construction period, the noise would be inconsistent with wilderness character and would present interference with natural quiet. There are several places where appropriate language has been included and should be duplicated on page 4-25 (e.g., Section 4.9.1.1, page 4-56, lines 38-44 and continuing on page 4-57; Section 4.11.1.1, page 4-71, lines 9-21; Section 4.12.1.1, page 4-92, lines 28-31).

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2. Page 4-25, Lines 20-21 - Noise related to construction activity will have an impact on CUIS; particularly pile driving.
3. Page 4-25, Lines 30-39 - Thank you for including an estimation of percent highly annoyed. However, this section should include some additional context. Since DNL is included here and used to calculate percent highly annoyed, please add text that acknowledges the limitations of DNL in general for evaluating quiet park settings, and in particular, for calculating the percent highly annoyed since it dilutes the noise energy by incorporating over 340 days in which no launch, land, or engine test noise occurs. Please describe how “annoyance” typically characterizes community response around airports, and not quieter settings like parks which do not manage to simply avoid annoyance, but to instead provide exceptional experiences where there may be an expectation of natural quiet, or in wilderness settings which are to afford outstanding opportunities for solitude. Please convey that beyond annoyance, the visitor experience would be one that is inconsistent with expectations for wilderness and quiet settings. There are several places where appropriate language has been included and should be duplicated on page 4-25 (e.g., Section 4.9.1.1, page 4-56, lines 38-44 and continuing on page 4-57; Section 4.11.1.1, page 4-71, lines 9-21; Section 4.12.1.1, page 4-92, lines 28-31).
4. Page 4-26, Lines 2-4 - Assessment of existing conditions is anecdotal as it does not appear that any baseline information on noise levels on CUIS was gathered for the DEIS. Recommend referring to previous noise assessments that were done for the CUIS Transportation Management Plan (pages 100-105). Link: <https://parkplanning.nps.gov/document.cfm?parkID=371&projectID=16447&documentID=27900>.

Final EIS preparers should be aware that the parameters for the data and the thoroughness of the data collection are not provided. It should also be understood that natural sounds are also part of the equation, including waves breaking on the beach.

4.5 - Department of Transportation Act, Section 4(f)

1. Page 4-30, Lines 16-18 - Section fails to recognize that the lightning towers, water tower, and potentially the vehicle integration building will be visible beyond the spaceport footprint and will permanently change existing landscapes. This should be addressed in the Final EIS.

4.7 - Hazardous Materials, Solid Waste, and Pollution Prevention

1. Page 4-42, Lines 13-15 – The Final EIS should specify that all response activities will be coordinated with the affected landowner(s).
2. Page 4-42, Lines 31-26 - FAA has stated previously, including responses to previous NPS queries, that all materials are consumed in the launch of a rocket and/or no materials are discharged from rockets. The statements discussing sweeps after each event to recover materials and vehicle debris would be a contradiction to these previous

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statements. Therefore, the Final EIS should address what type and volume of materials can be expected to discharge from rockets?

4.8 - Historical, Architectural, Archaeological, and Cultural Resources

1. Page 4-47, Lines 39-45, and Page 4-48, Lines 1-4 – There is no analysis in this section to substantiate the conclusion in the DEIS that there will not be any construction noise or vibration impacts to historic properties in the Area of Potential Effect. Construction activities, particularly pile driving, will be audible and will likely have adverse effects to the setting of historic properties on CUIS. The Final EIS should include specific noise modeling and analysis that demonstrate the attenuation of noise impacts from construction to historic properties on CUIS.
2. Page 4-48, Line 20 - “easternmost” should be westernmost.
3. Page 4-48, Line 27 – Similar to the above comment, there is no explanation as to why it will not be an adverse visual effect. Structures and lights would be visible from the portion of the Cumberland Island Cultural Historic Landscape that lies within the indirect APE, introducing elements to the setting of the historic landscape that affect a key characteristic of its eligibility. The NPS believes these intrusions represent adverse effects, particularly when combined with operations impacts.
4. Page 4-48, Lines 34-35 - The paragraphs in line 15-27 contradict this statement for cultural landscapes, particularly on the western portions of High Point – Half Moon. As described previously, construction activities, particularly pile driving, will be audible and will likely have adverse effects to the setting. This should be addressed in the Final EIS and through Section 106 consultation.
5. Page 4-50, Lines 32-36 – The Final EIS should describe the condition of the structures identified as the basis for the research used to establish the predictive one per 100, and in turn support the assessment that “the probability is low” for structural impacts from vibration. This comparative analysis and background is important to understand and support conclusions related to impacts to the historic properties in the APE.
6. Page 4-51, Lines 7-8 - Per our previous comment, what was the condition of the buildings used to determine the 1 per 1000 threshold and support low probability?

4.9 - Land Use

1. Page 4-56, Line 37 - “Travel” should be Transportation.
2. Page 4-59, Lines 6-7 - It is understood that the 12 launches per year is the measure. However, it does not take into account the reality of delays and reschedules. Is there data available that evaluates the frequency of delays, scrubs, and reschedules associated with the FAA’s representative launch vehicle? The incorporation of such data would enable a more realistic assessment of the impacts. This should be included in the Final EIS.

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3. Page 4-59, Lines 5-19 - It should be noted somewhere in the paragraph that reservations for the ferry, camping, and Lands & Legacies tour can be made up to six months in advance.

4.11 - Noise and Noise-Compatible Land Use

1. Page 4-72, Lines 1-35 - Pre-launch operational activity, especially during two-week surge operations, could have noise levels comparable to construction. For example, helicopters may transport people, pumps and other heavy equipment. Loudspeakers could be 52 dB LA,max on Cumberland Island (pg. 4-72). Please add text describing that for visitors to CUIS during these times, the noise would be inconsistent with wilderness character and would present interference with natural quiet. There are several places where appropriate language has been included and should be duplicated on page 4-72 (e.g., Section 4.9.1.1, page 4-56, lines 38-44 and continuing on page 4-57; Section 4.11.1.1, page 4-71, lines 9-21; Section 4.12.1.1, page 4-92, lines 28-31).
2. Page 4-88, Lines 21-34 - The EIS states that visitors to Cumberland Island during launches would not necessarily be representative of typical backcountry visitors. However, many variables will influence whether visitors' expectations align with actual events. Weather and technical delays, and the fact that visitors may make reservations months in advance, may result in some visitors who would like to see a launch missing it, and vice versa. Thus, this sentence should be modified because it suggests that all visitors are there to witness a launch. We advise that this sentence beginning with "However..." be removed. The word "annoyance" is used in lines 27 and 34. However, the "annoyance" response was initially developed to characterize the responses of communities around airports, and not quieter settings. Because parks do not manage to simply avoid annoyance, but to instead provide exceptional experiences where there may be an expectation of natural quiet, or in wilderness settings which are to afford outstanding opportunities for solitude, please remove the word "annoyance" and instead characterize the experience as one that may be inconsistent with wilderness character and would present interference with natural quiet.

4.12 - Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risk

1. Page 4-94, Lines 41-42 - Clarification is needed: There are currently two *other* docks in operation; The Dungeness Dock, *which is the other primary ferry dock for visitors*, sustained heavy storm damage and is closed for repairs.

4.13 - Visual Effects

1. Page 4-100, Lines 17-20 - It states that impacts were identified as minor to moderately adverse. However, Table 4.13-1 has several observation points identified as moderate to high.

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2. Table 4.13.1, Brickhill Bluff - The “small number of” park visitors is a misleading qualifier. While at any one time the number of visitors may be small but, over the cumulative years of Spaceport existence the number of visitors impacted will reach into the thousands.
3. Table 4.13.1, Cumberland Wharf - The vehicle integration building is likely to be visible from Cumberland Wharf as it is an elevated position of 35-45 feet ASL.
4. Table 4.13.1, Ice House Museum - Views from this point to Kings Bay and St. Marys would be westward not eastward.
5. Table 4.13.1, NPS CUIS Visitor Center – The Final EIS should clarify the light emissions discussion: the light emissions/glare would be visible but the sky glow would not?
6. Page 4-109, Line 18 - Brickhill Bluff is located on the west shoreline of Cumberland Island not the east.
7. Page 4-109, Lines 32-33 - The overall impact of moderate conflicts with the overall impact stated in Table 13.1-1 of moderate to high.
8. Page 4-110, Line 1 - The U.S. Route 17, Sidney Lanier Bridge in Brunswick would be more representative as it is much more elevated than the Jekyll Bridge and southbound traffic on the Lanier Bridge has a direct line of site to the Spaceport.
9. Page 4-110, Lines 44-45 - The VLF towers will not be visible from the Settlement.

4.14 - Water Resources

1. Page 4-125, Lines 17-24 – The Final EIS should address the extent to which wetland impacts of a launch failure could occur beyond the Spaceport property.

5.3 - Cumulative Impact Analysis

1. Pages 5-4 to 5-10 - Generally speaking, conclusive statements for the impact analysis for each resource are inconsistent in wording/terminology, vague, or sometimes not stated at all. As such, it can be confusing in regards to what is the final conclusion. Impact analysis conclusions should be clear, concise, and use consistent language/terminology.

6.13 - Visual Effects

1. Page 6-7, Line 23 - Section 6 page 7 line 23 links to “Page not found”. Please include a corrected link and the color chart.

Moreover, the purpose of the DEIS is to evaluate the potential environmental impacts that may result from the Federal Aviation Administration (FAA), Office of Commercial Space Transportation’s proposed action of issuing a Launch Site Operator License to the Camden County Board of Commissioners (County) to operate a proposed commercial space launch site, called Spaceport Camden. The license would allow the County to offer Spaceport Camden to

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commercial launch operators to conduct vertical launches. The County proposes to construct and operate Spaceport Camden in an unincorporated area approximately 11.5 miles due east of Woodbine on a 4,000 acre tract that could be expanded to 12,000 acres. All land would be owned or leased by Spaceport Camden. Our comments are provided in accordance with provisions of the Endangered Species Act (ESA) of 1973, as amended; (16 U.S.C. 1531 et seq.), the Bald and Golden Eagle Protection Act (BGEPA) (16 U.S.C. 668 et seq.), Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds, and the Fish and Wildlife Coordination Act (FWCA) (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.).

Spaceport Camden would include a number of facilities: a vertical launch facility with propellant tank farm, water tower, launch pad with deluge system and water capture tank and shops/integration facility, a landing zone facility with fuel and oxidizer off-load tanks, a barge landing facility, a launch control center with payload processing facility, and an alternate launch control center with visitor center facility. The facilities would encompass less than 100 noncontiguous acres on the site. There would be fencing around each facility and on the western perimeter of the spaceport. Proposed operations would include up to twelve launches per year of liquid-fueled, medium-large-lift-class orbital and suborbital vertical launch vehicles. All launches would be conducted to the east over Cumberland Island and the Atlantic Ocean. Also, up to twelve static fire engine tests, twelve wet dress rehearsals, and twelve returns of first stage launch vehicles per year are proposed. The first stage returns could land at the landing zone at Spaceport Camden, on a barge in the Atlantic Ocean and be returned, or land in the ocean without recovery.

Under the proposed action, the County would be issued a Launch Site Operator License by the FAA to operate Spaceport Camden. All future vehicle operators would be required to apply to the FAA for a launch license prior to conducting launch operations.

The purpose of the NEPA review and drafting an EIS is to provide detailed information concerning significant environmental impacts. We opine that the DEIS is general and does not adequately describe impacts that are reasonably certain to occur. We will elaborate on this with remarks on species and the environment in the Specific Comments section that follows. Detailed information on reasonably certain prospective impacts should be understood and disclosed in advance of permitting or construction. This will inform agencies and the general public as well as the applicant to be prepared for the impact and/or possibly modify the proposed project, take different actions, or to make considerations to provide mitigation for impacts.

Alternatives

The Spaceport Camden DEIS evaluates three alternatives: the Proposed Action, the Ocean-Landing Only Alternative, and the No Action Alternative. From an environmentally preferred, fish and wildlife standpoint, we view each alternative as having different environmental effects, but does not view any alternative as definitely the most environmentally preferred. This is in part due to our perception of lack of adequate description and analysis of impacts.

The Proposed Action is as described above. Through the ESA section 7 consultation, it includes the development of both a comprehensive Protected Species and Habitat Management Plan (PSHMP) and a Light Management Plan (LMP). The PSHMP conceptually includes active

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management of the pine uplands to enhance the habitat for the benefit of some local species of concern such as the eastern indigo snake (*Drymarchon couperi*), striped newt (*Notophthalmus perstriatus*), and gopher tortoise (*Gopherus polyphemus*). Should the management goals be met, the condition of the environment would be preferred to the current on-site conditions of thick pine plantations. The Proposed Action also includes on-site landings of rocket first stages. This may raise the risk of accidental occurrences to the environment slightly over no on-site landings.

The Ocean-Landing Only Alternative eliminates the risk of adverse impacts from first stage landings on-site. As this was not the project considered in ESA section 7 consultation, no agreements have been made concerning protection of the environment based on this alternative. In general, the DEIS describes the on-site landings as not having an appreciable change to the environmental impacts. The Department opines that the first stages will land somewhere if not onsite and those landings may cause impacts where-ever they land. The Department considers this alternative to be very similar to the proposed action in terms of risk to the environment.

The No Action Alternative would not change the local environment. The on-site pine uplands would continue as heavily vegetated pine plantations which are not considered to be preferred or good habitat for many terrestrial species of concern (Ashton & Ashton 2008).

Endangered Species Act

We have completed ESA section 7 consultation for the proposed action. Re-initiation of consultation must be requested if; (a) the amount of take is exceeded (currently none is expected); (b) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (c) the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered; or (d) a new species is listed or critical habitat designated that may be affected by the identified action.

The DEIS includes statements that the proposed action includes fencing each facility and fencing ‘the western boundary for security and to control access’. No fencing or other security/access control is proposed on the boundaries with creeks and marshes. Fencing the western boundary may interfere with movements of the ESA listed eastern indigo snake and the candidate gopher tortoise. This will depend on the type of fencing and installation. Element occurrence information indicates the local populations of both species extend across the western boundary of the Spaceport Camden. Fencing may be a barrier that divides populations and/or restricts seasonal species movements. Similarly, movements of the candidate striped newt may be restricted by certain fencing designs. We recommend boundary fencing to have a four to six-inch gap between the ground and bottom of the fencing to allow movement of snakes, tortoises, and newts. We encourage the fencing of each facility to prevent listed species interaction with construction or operations of the spaceport.

As considered in the ESA section 7 consultation, the LMP is expected to protect listed species, especially sea turtles, from take. Verbal descriptions of lighting for pre-launch operations and night launches in a recent agency meeting on the spaceport gave an impression that even with a LMP there may be more lighting than we had understood during ESA section 7 consultation. The amount of direct light, indirect light, glow, and sky glow should be described and its expected

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impacts for the sea turtle nesting beaches. Spaceport lighting has the potential to cause misorientation of nesting sea turtles and hatchlings on the beaches. This could be through sky glow or the lights may be directly visible from Little Cumberland or Jekyll island beaches from the ends of the islands adjacent to St. Andrew's Sound. To minimize impacts to sea turtles; all facets of light management should be considered, especially minimization of total illumination and light in the blue portion of the spectrum.

Bald and Golden Eagle Protection Act

The Department requests that potential impacts to the bald eagle (*Haliaeetus leucocephalus*) be discussed more thoroughly for the benefit of all including the applicant, the County.

Section 4.2 states that construction activities would follow National Bald Eagle Management Guidelines. There is no mention of the probable take of an inactive eagle nest. Shellbine² appears to be within the proposed launch facility site footprint. It was last active in 2008 and is in poor shape. Additionally, active nest Shellbine NW is located near the Launch Control Center Complex site. The DEIS does state that there would be permanent habitat loss at the four facility sites and that eagle nests occur within or near the construction ROI (region of impact). The eagle section ends with; 'In summary, construction activities are not expected to result in a take of a bald eagle'. This summary does not adequately acknowledge what eagle resources are present on the site and what is reasonably certain to occur to them.

Concerning Operations, the DEIS states: 'Camden County is responsible for determining if a Bald and Golden Eagle Protection Act permit is necessary.' United States Fish and Wildlife Service (USFWS) scoping comments included: 'Currently five nests are documented nearby; three active and two inactive. ... One of the active nests is on Pompey Island, approximately one half mile north of the currently proposed launch facility.' The Operations – Visual Impacts section of the DEIS describes the spaceport lighting as possibly having moderate to high impacts at an island further away than Pompey. The Department opines that the DEIS should include acknowledgement of the active nests. In particular a description of anticipated impacts, including from lighting and launches/landings, to the nest, eggs, chicks, and adult eagles should be included for the Pompey Island and Shellbine NW nests.

Responsibilities of Federal Agencies to Protect Migratory Bird

A portion of a DEIS section on migratory birds states: 'Operations would not have any significant impacts on migratory birds.' The Satilla Marsh Island Natural Area is mentioned in the Marine Protected Areas section. The DEIS states no adverse impacts are anticipated from construction or operation. Launch sound impacts on migratory birds is covered with the statement: 'Due to the short duration of high noise levels, the behavioral effects would be temporary, bird species would be expected to resume normal behavior after the disturbance was over. Operations would not have any significant impacts on migratory birds.'

The Department opines that the above does not adequately directly address the USFWS concern expressed in their scoping comments concerning the brown pelican (*Pelecanus occidentalis*) rookery. The USFWS stated that the brown pelican has a nesting colony on an island (Satilla Marsh Island Natural Area) in the Satilla River approximately 1.5 miles northeast of the

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proposed launch pad. The colony has been extant for over 20 years and has up to 400 nesting pairs per year. The DEIS migratory bird and marine protected areas sections do not mention the pelican rookery. The sound impacts discussion does not acknowledge that at times eggs and/or flightless chicks will most likely be in nests on the island during launches and first stage returns. It is not clearly stated what the reasonably expected effects and impacts would likely be to nesting adults, eggs, and chicks (i.e. overheated eggs or flightless chicks abandoning nests). The Operations – Visual Impacts section includes an assessment of spaceport lighting from the Satilla Marsh Island Natural Area. The assessment describes lighting impacts as prominent during launch windows (once per month) and annual night launch. Lights and sky glow may impact wildlife circadian rhythms and processes. Overall impact is described as moderate to high. These descriptions do not seem to align with the DEIS statements of no significant impacts on migratory birds.

The operation section begins by stating that daily operational activities may result in injury, mortality, alterations to reproductive success, startle responses, and water quality alterations. In our opinion, these impacts are not clearly explained.

The operations section does state: ‘Bowles (1995) suggests that outcome measures, such as reproductive success, are better indicators of distress in animals than short term responses (i.e., startle reaction). ... Most of the effects of noise on terrestrial animals are mild enough such that the effects might never be detectable as changes in population size or population growth against the background of normal variation (Bowles, 1995).’ However, the section does not give any direct assessments of species (i.e. eagle or pelican) expected reproductive success with the project.

Fish and Wildlife Coordination Act

We consider the extensive tidal marshes, creeks, and river adjacent to the proposed Spaceport Camden environmentally sensitive natural resources. Similarly we consider the uplands and forested wetlands to be important as habitat for ESA protected species. Protection of all this through a Stormwater management plan in the DEIS is very generic and non-specific. Operational impacts from new impervious surfaces and materials on site have the potential to increase Stormwater discharge introducing contaminants from runoff, which could impact the local environment (CSS 2009). Due to the proximity of the proposed facilities on the site to forested and tidal marsh wetlands, we recommend very protective provisions be made for Stormwater to be treated and held on site. We recommend incorporating the criteria in the Coastal Stormwater Supplement to the Georgia Stormwater Management Manual sections 4.4.3, 4.4.5 and 4.5.1 for primary conservation areas, extreme flood protection, and special criteria in the site development, construction, and operation. The DEIS does not state what level of protection is appropriate to safeguard the natural resources in the area.

Site Contamination

Site contamination is mentioned in a few places in the DEIS. Statements include: “the land acquisition process would require completion of a Phase I Environmental Site Assessment. The Environmental Site Assessment would document environmental conditions at the Spaceport Camden site. ... With implementation of the above procedures, no significant impacts would be

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expected from historical areas of contamination.’ The Department recommends that as part of the DEIS, at least the Phase I Environmental Site Assessment should be done prior to the FAA issuing any permit. There is an existing environmental covenant on the site. It can be found in the Camden County, Georgia, Clerk’s Office recorded on March 29, 2011. It describes the site as being subject to a Resource Conservation Recovery Act (RCRA) hazardous waste facility permit.

We recommend a Wildlife Hazard Assessment and Management Plan be prepared by U.S. Department of Agriculture - Wildlife Services (aka APHIS). Plan recommendations should be considered in the DEIS. For the plan and for the DEIS, a systematic survey for active raptor nests should be conducted within the ‘hazardous airspace’. The distance for this should be defined by APHIS. Any other MBTA nests should be noted. Information from any other surveys necessary for the Wildlife Hazard Assessment and Management Plan should also be considered in the DEIS.

Summary

The Department does not concur with Section 4(f) approval of this project at this time. We would be pleased to reconsider this position upon receipt of the documentation cited above. We also welcome the opportunity to sit down with you to discuss these concerns in a meeting that is mutually convenient.

We appreciate the opportunity to comment on this project. The Department has a continuing interest in working with the FAA to ensure that impacts to resources of concern to the Department are adequately addressed. If you have any questions or require further information regarding these comments, please contact Steven Wright via email at Steven_M_Wright@nps.gov or (404) 507-5710 or Donald W. Imm via email at donald_imm@fws.gov or (706) 613-9493. I can be reached at (404) 331-4524 or via email at joyce_stanley@ios.doi.gov.

Sincerely,



Joyce Stanley, MPA
Regional Environmental Officer

cc: Christine Willis – FWS
Michael Norris - USGS
Anita Barnett – NPS
OEPC – WASH

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Literature Cited

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