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Gen. Wayne Monteith  
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Federal Aviation Administration  
800 Independence Avenue, SW  
Washington, DC 20591

RE: FAA Review of Proposed Spaceport Camden, Camden County, GA

Gen. Monteith:

On behalf of the National Parks Conservation Association and One Hundred Miles, I am writing regarding the recent changes to the proposed Spaceport Camden in Camden County, Georgia. On December 14, 2019, Camden County requested that the FAA toll its review of Spaceport Camden's license application under 14 C.F.R. § 413.15(b). Camden County stated that it intended to limit the operation of Spaceport Camden to small launch vehicles. On December 16, 2019, the FAA agreed to this request and tolled its review of Spaceport Camden's pending application.

Camden County's last-minute withdrawal and revision of its launch site license application raises a myriad of concerns under the FAA's licensing regulations, the National Environmental Policy Act ("NEPA"), and other statutes. The FAA must address several key issues as it considers this new application. First, it must prepare a supplemental environmental impact statement for the new proposal and address shortcomings in the draft environmental impact statement ("DEIS"). Second, the FAA must revisit the alternatives analysis found in the DEIS based on this new proposal. Third, the FAA must address other legal shortcomings found in the DEIS. Fourth, to conserve agency resources and provide administrative clarity on the process, the FAA must formally deny Camden County's prior application and evaluate this new application under the process set forth in its regulations. Finally, the FAA must take a more engaged approach to rebut Camden County's mischaracterizations of the FAA's actions and the status of this project.

## **I. The FAA Must Prepare A Supplemental Environmental Impact Statement For The New Proposal.**

In seeking to change its license application from a medium-large rocket facility to a small rocket one, Camden County has fundamentally redefined the nature of the project, the applicable requirements, and its likely environmental effects. Accordingly, the FAA must prepare a supplemental draft environmental impact statement.

Council on Environmental Quality (“CEQ”) regulations make clear that a supplemental draft environmental impact statement must be prepared if substantial changes are made to the proposed action that are “relevant” to environmental concerns. 40 C.F.R. § 1502.9(c). “The question of a supplemental EIS is premised on the dual purposes of the EIS: to assure that the public who might be affected by the proposed project be fully informed of the proposal, its impacts and all major points of view; and to give the agency the benefit of informed comments and suggestions as it takes a ‘hard look’ at the consequences of proposed actions.” *Dubois v. U.S. Dep’t of Agric.*, 102 F.3d 1273, 1291 (1st Cir. 1996). A supplemental EIS “is required if a new proposal will have a significant impact on the environment in a manner not previously evaluated or considered.” *Westlands Water Dist. v. U.S. Dep’t of Interior*, 376 F.3d 853, 873 (9th Cir. 2004) (internal quotation omitted). The fundamental changes to Camden County’s proposal clearly meet this low bar.

1. Changing the lift class of the model launch vehicle requires a supplemental DEIS.

Under FAA guidance, “a launch facility developer planning to launch a variety of launch vehicle sizes must design for the largest vehicle likely to be used.” FAA, *Guidelines for Compliance with [NEPA] and Related Environmental Review Statutes for the Licensing of Commercial Launches and Launch Sites* at 18 (Feb. 2001) (“FAA NEPA Guidelines”).<sup>1</sup> Accordingly, the DEIS for Spaceport Camden focused on the environmental effects of a launch facility for medium-large rockets. As explained in the Executive Summary:

Spaceport Camden would be available to a range of launch operators, each of which offers various launch vehicles. While these vehicles would include small to medium-large lift class and use liquid propellants, they would have different design and operating specifications. Since a specific launch vehicle cannot be identified until a launch operator is identified and a variety of launch vehicles would be candidates to be launched from the launch site, *a representative medium-large lift-class launch vehicle is used in this EIS to evaluate the potential environmental impacts of launches from the launch site.*

DEIS, Executive Summary at 9 (emphasis added).

The DEIS further acknowledges that launch vehicle size along with “the type of fuel used by the launch vehicle, fuel capacity..., and thrust are important parameters in the analysis of environmental impacts.” *Id.* at 2-22. The DEIS itself concedes that changing these important parameters would require supplementation of the DEIS. *Id.*, Executive Summary at 1 (“A supplemental environmental analysis could be required when one or more of the parameters of the proposed construction or launch activities fall outside what is analyzed in this EIS.”); *see*

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<sup>1</sup>[https://www.faa.gov/about/office\\_org/headquarters\\_offices/ast/licenses\\_permits/media/epa5dks.pdf](https://www.faa.gov/about/office_org/headquarters_offices/ast/licenses_permits/media/epa5dks.pdf)

*also id.* at 2-21 n.18 (“Any proposed trajectories, launch vehicles, and/or fuel types or changes to the maximum number or timing of launches identified during the licensing process that are outside the scope of those addressed in this EIS would require additional environmental review.”)

FAA staff also recognized that changing the application to focus on small launch vehicles would require a supplemental EIS.

If they want to change their approach to only small launch vehicles to satisfy the location review, then I think they need to change the approach to the EIS. We can’t put out an EIS that describes vehicles that look like Falcon 9s when [] they’ve only demonstrated that a Vector-R might be safe enough.

Email from D. Murray to K. Branham et al., RE Camden Agenda (August 10, 2017), attached.

2. The environmental effects of small rockets differ from those of medium-large rockets due to their higher failure rate.

Changing the proposed launch vehicle requires a supplemental EIS because small vehicles present different risks and environmental impacts than larger vehicles. Specifically, small launch vehicles are expected to fail at a much higher rate than medium-large vehicles.

Spaceport Camden’s DEIS repeatedly assumes a failure rate of 2.5–6%, based on Falcon 9’s launch history (6% failure) and the Mars 2020 EIS’ Falcon Heavy analysis (2.5% failure). DEIS at 2-34 and 2-40; *see also* at 4-3, 4-20, 4-69, 4-125, and 4-126 (all downplaying the likelihood of launch failures). Setting aside whether these figures are correct,<sup>2</sup> the FAA’s own experts state that a smaller vehicle would increase the probability of failure. Email from T. Braun to D. Murray, RE: Camden Ec study for pops on Cumberland Island (Oct. 31, 2018); *see also* Email from T. Braun to S. Jackson, RE: Camden LCI pop number (Oct. 12, 2018) (“Note, a smaller vehicle (i.e. Rocket Lab) would reduce the casualty area, but the reliability would be less (increasing the [probability of failure]).”), both attached.

Given the close proximity of the Spaceport Camden site to populated areas, a National Seashore, and other important natural resources, the increased probability of launch failure

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<sup>2</sup> For one, the Falcon Heavy is not a medium-large rocket. Kenneth Chang, “*Falcon Heavy, in a Roar of Thunder, Carries SpaceX’s Ambition Into Orbit*,” The New York Times (Feb. 6, 2018) (“The Falcon Heavy is capable of lifting 140,000 pounds to low-Earth orbit, more than any other rocket today.”). Further, the DEIS appears to rely on information from the online news outlet VOX for its medium-large failure data. DEIS at 2-34 (citing April Glaser, “94 percent of SpaceX’s Falcon 9 rocket launches have been successful,” VOX (May 28, 2017), <https://www.vox.com/2017/5/28/15695080/spacex-falcon-9-rocket-launch-successful>). Given the importance of the failure rate issue, future environmental review documents must include more detailed analysis from more reliable data sources.

means a corresponding increase in the risk to natural resources and the public. Additionally, the DEIS identifies fuel type, fuel capacity, and thrust as “important parameters in the analysis of environmental impacts.” DEIS at 2-22. Because all of these parameters may be different for small launch vehicles compared to the representative vehicle in the DEIS, these changes are all relevant to environmental concerns and require a supplemental EIS. 40 C.F.R. § 1502.9(c).

3. Changing the proposal to focus on small vehicles will impact other aspects of Spaceport Camden’s design.

Beyond the size of the launch vehicle, Camden County’s new proposal triggers a cascade of other potential design changes to the launch facility. A small rocket-only facility could differ in the size and design of the launch pad, possible launch pad configurations, *FAA NEPA Guidelines* at 18, the size and layout of necessary supporting facilities, *see* DEIS at Tables 2.1-2–4, the roads and other infrastructure required, DEIS at 4-65, the amount of propellants stored onsite, *id.* at 4-67, and its water management plan (including groundwater withdrawal and deluge system).

Likewise, the DEIS’ discussion of Spaceport Camden’s operation focuses on “a typical medium-large lift-class launch vehicle and a description of typical operational activities.” DEIS at 2-21. These operational activities would change for small launches. For example, public notice of the “date, time, and location of closure areas and best viewing areas, the expected closure dimensions, times, and backup closure dates and times” were described “for a commercial launch of a medium-large launcher and its primary payload(s).” *Id.* at 2-27. Perhaps most importantly, it is unclear whether Spaceport Camden will conduct the same number of launches under this new design. The DEIS repeatedly states that the facility is expected to conduct twelve launches per year. *E.g. id.*, Executive Summary at 5. That number may increase or decrease if only small rockets are licensed, with corresponding impacts on the risk and environmental effects of operating the facility. All of these design aspects must be reexamined.

The DEIS must also be supplemented because much of its data regarding the project’s environmental effects is unique to medium-large launch vehicles. For example, “[d]ata used to calculate [air] emissions from launch operations were obtained from the *Final Environmental Impact Statement for the SpaceX Texas Launch Site* (FAA, 2014).” DEIS at 4-2. SpaceX did not intend to launch small rockets and did not calculate emissions from small rockets. Similarly, the *Launch Vehicle Noise Study for Spaceport Camden’s Environmental Impact Statement* (BRRC, 2017) “describes [only] the environmental noise associated with the proposed medium-large class launch vehicle (MCLV) events.” *Id.*, App’x C at C-5; *see also* C-17 (“The RUMBLE model requires specific vehicle/engine input parameters to determine the noise exposure resulting from the proposed operations of the MCLV.”). Because these noise and emissions studies focused on a different launch vehicle, a supplemental EIS must be prepared evaluating the effects for the launch of smaller, less reliable vehicles.

Finally, even if some of the environmental effects could be less for a small rocket, NEPA requires the FAA to perform the necessary analysis to verify and document those conclusions. FAA guidance makes clear that “agencies can, and should, address beneficial impacts.” *FAA NEPA Guidelines* at 20; *see also* 40 C.F.R. § 1508.27(b)(1) (“Impacts that may be both beneficial and adverse.”). As explained by the First Circuit Court of Appeals, “It is quite another thing to adopt a proposal that is configured differently, in which case public commenters might have pointed out, if given the opportunity—and the [agency] might have seriously considered—wholly new problems posed by the new configuration (even if some of the environmental problems present in the prior alternatives have been eliminated).” *Dubois*, 102 F.3d at 1293.

4. The FAA must conduct a new public comment period for the supplemental DEIS.

The FAA must also conduct a new public comment period regarding any supplemental DEIS. A small rocket facility presents different concerns than the facility described in the Federal Register notices. Prior notices regarding this project have focused primarily or, in some cases, exclusively, on the launch of medium-large rockets or larger. The scoping notice describes a facility designed for launching medium-lift-class rocket. *Notice of Intent to Prepare an Environmental Impact Statement*, 80 Fed. Reg. 68893-01 (Nov. 6, 2015); *Notice of Availability and Request for Comment on the Spaceport Camden Draft Environmental Impact Statement (EIS)*, Camden County, GA, 83 FR 11810-02 (Mar. 16, 2018); *see also* *U.S. Coast Guard Proposed Rules for Safety Zones; Spaceport Camden, Woodbine, GA*, 83 Fed. Reg. 47324-02 (Sept. 19, 2018). These notices also describe a landing area at the site for rocket returns that no longer appears to be part of Camden County’s plans. *Id.*

Moreover, the public must have the opportunity to learn how a small rocket facility would differ from the prior proposal, and must be afforded the opportunity to provide comments on this new information.

There cannot be responsible decision-making when data appears in the final EIS without being subject to the critical evaluation that occurs in the draft stage. There are two dangers that can occur when information appears in the final EIS for the first time: (1) the ultimate decisionmakers will believe that there is no controversy due to the lack of critical comment; and (2) objective errors without being red-flagged would go unnoticed.

*Essex Cty. Pres. Ass’n v. Campbell*, 399 F. Supp. 208, 216 (D. Mass. 1975), *aff’d*, 536 F.2d 956 (1st Cir. 1976).

Finally, the FAA relied solely on a representative medium-large launch vehicle in its consultations with other federal agencies, state government, and tribal governments. DEIS, App’x A § A.2.2.2. The FAA’s consultation under multiple statutes relied on assumptions about the noise, vibration, light, fire risk, and other aspects of a medium-large facility. *See id.* at A-

188. Changes to these environmental effects are relevant for the FAA's consultation under the Endangered Species Act, the National Historic Preservation Act, and Section 4(f) of the Department of Transportation Act. The FAA must re-initiate consultations with its federal, state, and tribal partners regarding the new proposal with updated information regarding the proposed small rocket facility.

Both the public and other agencies should be given the opportunity to evaluate this new proposal, understand how its environmental effects differ from those in the prior proposal, and provide public comment accordingly.

## **II. The FAA Must Reevaluate The Purpose, Need, And Viability Of Potential Sites.**

Beyond the need to prepare a supplemental DEIS, it is clear that the prior document did not properly evaluate alternatives in the first instance. Instead, the DEIS and related correspondence make clear that Camden County pre-selected its preferred location (the former Union Carbide site) from the outset. The FAA then allowed Camden County to reverse engineer the NEPA process to select this site as the only alternative. This approach is plainly unlawful. The FAA must use the supplemental DEIS to revisit these errors and perform a proper, objective review of all potential alternatives. Failing to do so will render this project's NEPA review legally deficient.

### **1. The FAA is required to independently verify Spaceport Camden's Statement of Purpose and Need, and its Alternatives Analysis.**

Under NEPA and its own regulations, the FAA is required to objectively review and verify the purpose, need, and viability of potential alternatives submitted by Camden County.

Independently and objectively evaluating applicant-submitted information and EAs and taking responsibility for content and adequacy of any such information or documents used by the FAA for compliance with NEPA or other environmental requirements.

FAA Order 1050.1F § 2-2.1(a)(3).<sup>3</sup> But here, the FAA recognized and then sanctioned Camden County's efforts to reverse engineer its preferred alternative. According to FAA staff, in preparing Spaceport Camden's DEIS, "the following items [were] completed out of order:

- Scoping prior to developing the initial DOPAA [*Description of the Proposed Action and Alternatives*]
- Developing the proposed action and proposing alternatives prior to developing the purpose and need statement, and

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<sup>3</sup> [https://www.faa.gov/documentLibrary/media/Order/FAA\\_Order\\_1050\\_1F.pdf](https://www.faa.gov/documentLibrary/media/Order/FAA_Order_1050_1F.pdf).

- Proposing to conduct field work prior to establishing and coordinating the range of reasonable alternatives to be carried forward in the EIS.”

Email from S. Zee to S. Howard, Camden – issues from the project (June 8, 2016), attached. Camden County decided its preferred alternative and then worked backward.

Further, there is little evidence that the FAA scrutinized the information submitted by Camden County related to purpose, need, or viability of alternatives. Although Camden County submitted various site suitability memos, there is no independent analysis by the FAA verifying the conclusions offered by Camden County in these memos. In both respects, the DEIS fell short of the legal requirements set forth in NEPA and FAA guidelines.

2. Camden County’s investment in the Union Carbide site undermines the DEIS’ Alternatives Analysis.

That Camden County pre-determined the Union Carbide site as its preferred alternative is clear based on its option to purchase that one particular site. The FAA’s failure to properly scrutinize Camden County’s submissions in light of this financial bias runs afoul of NEPA and FAA requirements.

The alternatives analysis is “the heart of the environmental impact statement.” 40 C.F.R. § 1502.14. To ensure a fair and impartial comparison of alternatives, an agency may not:

[D]efine the objectives of its action in terms so unreasonably narrow that only one alternative from among the environmentally benign ones in the agency's power would accomplish the goals of the agency's action, and the EIS would become a foreordained formality.

*Friends of Southeast's Future v. Morrison*, 153 F.3d 1059, 1066 (9th Cir. 1998). CEQ regulations prohibit agencies from taking actions to “limit the choice of reasonable alternatives” until a record of decision is completed. 40 C.F.R. § 1506.1(a). FAA guidance applies these prohibitions in the specific context of land acquisitions, requiring the agency to “review a proposed action by an applicant that has acquired land ... without prior approval by the FAA to determine whether the action ... has limited full and objective consideration of alternatives.” FAA Order 1050-1F § 2-7. The FAA’s scoping notice shows that the agency is aware of the Camden County’s purchase option, 80 Fed. Reg. 68893-01 (Nov. 6, 2015), but there is no evidence that the FAA evaluated whether this purchase option prejudiced the alternatives analysis.

Troublingly, correspondence from 2016 reveals that Camden County later added a “cost competitive” criterion to eliminate other potential sites. Andrew Nelson, Spaceport Camden Site Analysis – West Site / Ceylon at 4 (July 15, 2016) (“...considering other required infrastructure costs for this greenfield site, it is not anticipated that this site would reasonably be cost

competitive versus other sites by several multiplicative factors of cost.”). The FAA acceded, adding cost competitiveness as a site selection criterion in the DEIS. DEIS at 2-41.

With this ill-defined criterion in place, Camden County determined that its preferred alternative was cost effective and other sites were not. DEIS at Table 2.4-1. Further, the sole support for these determinations appears to be the self-serving and unverified assertions of Camden County. *See* Andrew Nelson, Spaceport Camden Site Analysis – UCC-BCS Site at 4 (July 18, 2016) (“The [Union Carbide] site has been determined affordable by the County, which has entered into an option to purchase the UCC site, and is actively engaged with [Bayer] for the sale of the other piece of property...”). Using prior real estate contracts to foreclose consideration of other alternatives is precisely the type of biased review prohibited under NEPA and the FAA’s own regulations.

Cost effectiveness is a legitimate consideration under NEPA. But, like all NEPA review, it must be the result of impartial analysis and supported by actual information. Moving forward, if Camden County wishes to use cost effectiveness as a criterion for evaluating potential alternatives, it must submit actual information comparing the costs of real estate acquisition, design, engineering, and construction at alternate sites. And then the FAA must verify the accuracy and objectivity of this information. Moreover, Camden County has now invested substantial amounts of money to conduct environmental studies, historical surveys, and other studies on the Union Carbide site prior to abandoning the proposal in the DEIS. These sunk costs and the option to purchase the site must not be allowed to bias a new alternatives analysis in favor of Camden County’s preferred site.

In the absence of such information and impartial process, the FAA has not taken the necessary steps to ensure that a full and objective consideration of alternatives was conducted.

### 3. The DEIS cannot rely on dual Statements of Purpose and Need.

Under NEPA, Section 4(f) of the Department of Transportation Act, and other statutes, federal agencies are required to define the purpose and need for agency action. Often agency actions are undertaken in response to applications by third parties like Camden County. In such cases, the federal agency must reconcile its needs with those of the applicant. The agency has to “take into account the needs and goals of the parties involved in the application.” *Citizens Against Burlington, Inc. v. Busey*, 938 F.2d 190, 196 (D.C. Cir. 1991). However, the preferences of the applicant are not dispositive:

Perhaps more importantly, an agency should always consider the views of Congress, expressed, to the extent that the agency can determine them, in the agency's statutory authorization to act, as well as in other congressional directives.

*Id.* CEQ guidance reinforces this point, making clear that Camden County’s preferences alone do not define the scope of reasonable alternatives:

In determining the scope of alternatives to be considered, the emphasis is on what is "reasonable" rather than on whether the proponent or applicant likes or is itself capable of carrying out a particular alternative. Reasonable alternatives include those that are practical or feasible from the technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant.

CEQ, *Forty Most Asked Questions*, 46 Fed. Reg. 18026 at 2(a) (March 23, 1981). Thus, an agency must consider its interests relative to those of the applicant, and “define goals for its action that fall somewhere within the range of reasonable choices.” *Id.*

This did not occur in the DEIS. Instead, the DEIS offered two alternative statements of purpose and need: one for the FAA and one for Camden County. DEIS, Executive Summary §§ 1.1 and 1.2. These competing statements differ in critical respects. Camden County’s purpose and need focuses on “small to medium-large lift-class, orbital and suborbital, vertical launches.” *Id.*, Executive Summary at 1. The FAA’s statement is broader:

[T]o protect the public health and safety, safety of property, and national security and foreign policy interests of the United States and to encourage, facilitate, and promote commercial space launch and reentry activities by the private sector in order to strengthen and expand U.S. space transportation infrastructure.

*Id.* at 2. Moreover, Camden County’s statement is geographically limited, whereas the FAA’s statement is national in scope. *Id.* at 1–2.

The use of this dual approach distorts the DEIS’ Alternatives Analysis. Despite the FAA’s national mandate, the DEIS reasoned that “[b]ecause the Proposed Action is a Camden County initiative, only locations within Camden County were considered.” DEIS at 2-40. Further, and contrary to FAA guidance requiring objective verification of all applicant submissions, the DEIS’ alternatives analysis was limited to five potential sites “identified by county officials.” *Id.* at 2-41. The DEIS does make passing mention of three other existing launch facilities – Wallops Flight Center, Canaveral National Seashore, and Kennedy Space Center – but cursorily dismisses them because they are not located in Camden County, Georgia. DEIS at Table 2.4-1. Even if these alternatives do not meet Camden County’s statement of purpose and need, NEPA requires the FAA to determine if they best meet the agency’s purpose and need.

The DEIS’ use of dual purposes also creates contradictions and inconsistencies in its analysis. For example, Spaceport Camden would require launching rockets over downrange

residential and public recreation areas. This fact would not be problematic under Camden County's statement of purpose but contradicts the FAA's purpose of ensuring public health, safety, and safety of property.

Likewise, it seems likely that in order to obtain a launch site license, Camden County will need to severely restrict the conditions under which rockets can be launched, particularly with respect to mission controls, the size of rockets, and the launch azimuths available. These restrictions raise concerns that the facility would be under-utilized or potentially not constructed at all. Although this fact does not appear to trouble Camden County, licensing such a facility would contradict the FAA's purpose of encouraging and promoting space launch facilities. Similarly, granting a launch license without demonstrated market demand, or when sufficient launch capacity already exists elsewhere, is not a problem under Camden County's definition but contradicts the FAA's goal of encouraging the commercial space transportation industry.

The FAA's legislative mandate goes beyond issuing licenses; it is the caretaker of public safety, public property, and the national space transportation industry. The supplemental EIS must include a single statement of purpose and need for this project. Although Camden County's preferences are rightly considered, they cannot subsume the FAA's statutory mandate to "protect the public health and safety, safety of property, and national security," as well as its responsibility to ensure that investments in the commercial space industry are not undertaken in a reckless manner. Accordingly, the supplemental DEIS' statement of purpose and need must require any alternative advanced to be safe, viable, and meet actual market demand. Failure to do so will fall short of NEPA's requirements.

4. The FAA must consider its safety regulations as part of the Alternatives Analysis in the supplemental DEIS.

The primary reason for Camden County's new proposal is the inability of the prior application to satisfy the FAA's safety regulations. The fact that these problems were not fully addressed prior to the DEIS illustrates a fundamental flaw in the review of alternatives. The DEIS eliminated alternate sites for a variety of other, less consequential reasons but accepted Camden County's assurances that the Union Carbide site had the "clear potential to satisfy FAA regulations, 14 CFR Part 420." DEIS at 2-41. In fact, it did not.

By failing to thoroughly evaluate the Union Carbide site at the outset, millions of taxpayer dollars and substantial agency resources were spent processing Camden County's ill-advised proposal. The FAA must rectify this error in the supplemental EIS and require all sites to demonstrate compliance with the FAA's safety regulations as a threshold matter before they are considered further. Specifically, the FAA should require Camden County to demonstrate that any site with population overflight actually meets both the launch site operator license *and* individual launch license safety regulations prior to its inclusion in the supplemental EIS. As an added benefit, a more complete analysis at the outset will provide more information regarding

the launch azimuths, closure areas, risk of failure, types of vehicles, and other important information that was absent from the DEIS.

5. The DEIS' Alternatives Analysis relies on considerations that are changed or abandoned under the new proposal.

The FAA must revisit the DEIS' Alternatives Analysis because other sites and other site designs may be feasible in light of the new small rocket proposal. The FAA's regulations require an applicant to "demonstrate that the heaviest weight class planned to be flown ... can be flown from the launch point safely." 14 C.F.R. 420.19(c). As Camden County's launch site license application noted, the "medium-large launcher [wa]s the primary driver of requirements for Spaceport Camden." Spaceport Camden, Launch Site License Location Review at 10 (Jan. 25, 2019). The DEIS also specifically lists "the necessary facilities and infrastructure to support the launch of liquid-fueled, medium-large lift-class, orbital and suborbital vertical launch vehicles" as one of the primary site selection criteria. DEIS at 2-41.

As the inquiry now focuses on the requirements of a small launch vehicle facility, the Alternatives Analysis must also reflect these new parameters. For example, FAA regulations require launch pads for medium-large launch vehicles be at least 10,600 feet from the launch site boundary but small launch vehicles require a smaller radius of 7,300 feet (or 1.38 miles). 14 C.F.R. § 420.21. With respect to off-site alternatives, at an early stage Camden County eliminated all sites without "larger buffer areas." DEIS at 2-40. This included the West Ceylon site. DEIS at 2-42–43; *see also* Andrew Nelson, Spaceport Camden Site Analysis – West Site / Ceylon at 3 (July 15, 2016) ("...the site does not meet the 14 CFR 420.21 Table 2 requirement for no potential persons in the immediate 10,500 feet radius of the launch pad. This criteria [*sic*] is not met due to an elaborate home site within 1.5-1.75 miles of the launch pad...."). This site and several others were eliminated because they did not meet the radial requirements of Part 420, DEIS at Table 2.4-1, so these sites must be re-evaluated in light of the reduced radius. Alternate on-site designs must also be re-examined, including the Silo Site which was rejected because of the buffer requirement. DEIS at 2-46.

The DEIS also required potential sites to "accommodate the delivery of large items such as launch vehicle stages, fuel tanker trucks, and the delivery of equipment." DEIS 2-41. Sites could accomplish this by providing rail or dock access. *Id.* Under the new proposal, a site would no longer need to accommodate rocket returns, may not require a dock, and would not need to accommodate deliveries necessary of a medium-large launch vehicle.

6. The FAA must consider whether Camden County's preferred site can be operated within the restrictions of state law.

CEQ guidance makes clear that a "potential conflict with local or federal law does not necessarily render an alternative unreasonable, *although such conflicts must be considered.*"

*Forty Most Asked Questions*, at 23(a) (emphasis added). Yet in evaluating Spaceport Camden, the DEIS failed to consider the extent to which state law will limit, or entirely prevent, operation of Spaceport Camden. In fact, state law raises serious concerns about the circumstances in which the Spaceport Camden site could operate and the DEIS' failure to address these legal issues must be remedied in the supplemental EIS.

Camden County lacks the authority to restrict navigation, to restrict access to private property on inhabited islands, and to interfere with fishing on tidewaters around the spaceport site such as the Satilla River, and Todd and Floyd Creeks. If "there is reasonable doubt of the existence of a particular power, the doubt is to be resolved in the negative. Powers of county commissioners are strictly limited by law, and they can do nothing except under authority of law." *Mobley v. Polk Cty.*, 242 Ga. 798, 802 (1979). Thus, to the extent Camden County's authority in these respects is disputed, Georgia law requires these disputes be resolved against Camden County. There are three areas where the operation of Spaceport Camden likely runs afoul of Georgia law.

First, Camden County cannot restrict navigation on tidewaters. The State of Georgia holds title to the beds of tidewaters in public trust for "the people of the state to use and enjoy ... for fishing, passage, navigation, commerce, and transportation...." O.C.G.A. § 52-1-2. The protection of such use "has more than local significance, is of equal importance to all citizens of the state, is of state-wide concern, and, consequently, is properly a matter for regulation under the police powers of the state." *Id.* Restrictions on navigation are unlawful because "by the common law the citizens of this state have an inherent right to use as highways all navigable streams and ... such right of use has not been modified by statute." *Id.* § 52-1-31. Further, not even a landowner adjacent to tidewaters has the right to "prevent the free use of the same by other persons for the purposes of passage and for the transportation of such freights as may be capable of being carried thereon." *Id.* § 44-8-8. Yet here, operation of Spaceport Camden would require regular restriction of multiple public waterways, potentially including the Satilla River and the Intracoastal Waterway. Further, Spaceport Camden is including state-owned tidal marsh as part of its buffer area under 14 C.F.R. § 420.21. Thus, complying with FAA safety regulations would require Camden County to limit public access to state-owned tidal marsh, something it legally cannot do.

Second, Camden County cannot restrict access to private property for spaceport operations. The DEIS makes clear that this project is intended to advance Camden County's economic development goals and that operating the facility may require temporarily removing residents of Little Cumberland Island from their private property. DEIS, Executive Summary at 9–10. Yet the DEIS failed to address whether Camden County has the legal ability to enforce such displacement under state law. It does not, because Georgia law prohibits the use of eminent domain for economic development purposes.

In 2006, the Georgia Constitution was amended to prohibit the use of eminent domain for purely economic development purposes. “The power of eminent domain shall not be used for redevelopment purposes by any entity, except for public use, as defined by general law.” Ga. Const. Art. IX, § II, ¶ VII. “[The 2006 amendment withdrew] the previous constitutionally granted authority for the sale or disposition of property, acquired by a governmental entity by eminent domain, to private entities for private use.” *Darling Int’l, Inc. v. Carter*, 294 Ga. 455, 463 (2014). At the same time, the Georgia Legislature passed the Landowner's Bill of Rights and Private Property Protection Act which defined “public use” to explicitly exclude economic development. O.C.G.A. § 22-1-1(9). In short, Georgia counties cannot “take” private property, even temporarily, for economic development purposes. Yet that is exactly what Camden County proposes to do by evacuating or restricting resident access to their property on Little Cumberland Island.<sup>4</sup>

Third, Camden County cannot interfere with Georgians’ Constitutional right to fish. “The tradition of fishing and hunting and the taking of fish and wildlife shall be preserved for the people and shall be managed by law and regulation for the public good.” Ga. Const. Art. 1, § 1, ¶ XXVIII. Only the General Assembly and the Board of Natural Resources have the power to make laws and rules governing fishing in Georgia. O.C.G.A. § 27-1-3(h). The law expressly forbids political subdivisions of the state, such as Camden County, from regulating fishing. *Id.* “It shall also be unlawful for any person to obstruct or interfere with the right of any other person to fish in these salt-water creeks, streams, or estuaries leading from the Atlantic Ocean or from the sounds, rivers, or bays surrounding the several islands of this state.” *Id.* § 27-4-2. There is no state law or regulation that allows Camden County to interfere with Georgians’ right to fish in waters surrounding the spaceport and it cannot close the Satilla River, Floyd Creek, Todd Creek, and other tidal creeks and estuaries to fishermen during spaceport operations.

These three state law issues clearly fall within the potential legal conflicts that CEQ guidance requires to be considered, and therefore must be addressed in the supplemental DEIS.

### **III. The FAA Must Rectify Other Shortcomings And Omissions In The DEIS.**

In comments submitted in June 2018 on the DEIS, the undersigned and other groups identified a number of areas where the DEIS failed to properly analyze this proposal under NEPA. Those comments are incorporated by reference here. But several of those concerns merit additional discussion in light of Camden County’s revised proposal, and any future actions by FAA must rectify these shortcomings

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<sup>4</sup> Even if the FAA determines that no forced evacuations or access restrictions would be required, the act of launching rockets could constitute a taking based on the noise, light, vibration, depreciated property values, and the threat of rocket failures interfering with the use and enjoyment of private property near the flight path.

1. The FAA's licensing regulations do not limit the scope of NEPA review.

In the DEIS, the FAA deferred consideration of the environmental effects of launching rockets from the Spaceport Camden facility. Instead, the DEIS stated that these effects would be considered on a launch-by-launch basis. DEIS at 1-6. This approach tracks the distinction between launch facility siting and launch facility operation found in FAA regulations. *See* 14 C.F.R. Parts 415 and 420. However, the scope of NEPA review is not defined by the FAA's licensing regulations, and the DEIS' failure to consider the environmental effects of rocket launches is a clear violation of NEPA.

The FAA's regulations may create a distinction between siting and launch decisions, but NEPA does not. The purpose of a launch facility is to launch rockets; thus the environmental effects of those launches are not only foreseeable but are intended. Accordingly, the environmental effects of rocket launches must be considered as direct or indirect effects of the proposed action. 40 C.F.R. § 1508.8. Although the precise details of a specific rocket launch (*e.g.* the vehicle type, manufacturer, payload, trajectory, fuel type, etc.) may not be known, it is certainly possible to estimate the type and scale of environmental effects based on the launch of a generic vehicle. In fact, the FAA undertakes this precise type of review with respect to its own safety regulations. Further, many of the environmental effects of rocket launches, such as the risk of wildfire on the barrier islands if a rocket launch fails, are unlikely to change significantly based on the details of a specific launch. Finally, considering environmental effects on a launch-by-launch basis prevents any consideration of cumulative effects as required by NEPA. Separating the siting decisions from operation decisions is a clear example of unlawful NEPA segmentation.

The FAA appears to view the DEIS as a tiered NEPA review. But NEPA tiering is intended to allow environmental effects to first be considered broadly in an EIS, and for this analysis to be later refined in a site-specific (or in this case, launch-specific) environmental analysis. 40 C.F.R. § 1508.28. Thus, if the FAA sought to use a tiered review for Spaceport Camden, it should have prepared a general analysis of the environmental effects of rocket launches in a Tier I EIS and then drawn from this document later when licensing individual launches. But the DEIS does not use this approach; instead, the DEIS omits any consideration of certain environmental effects until after the launch site license is issued. This error must be rectified as FAA moves forward with its environmental review of this project.

2. The FAA must address the risk and environmental effects of rocket failure.

Another critical omission from the DEIS is any meaningful discussion of rocket failures including: risk of casualties, risk of wildfires, risk to wildlife and habitat, pollution, and debris. Of particular concern are the risks to the public from falling debris and wildfires on Cumberland Island and Little Cumberland Island. In fact, Camden County submitted a fire management plan in March 2019. Although cursory and clearly deficient, this information regarding the risk of

wildfire and potential mitigation measures was not made available to the public as part of the DEIS. The existence of this wildfire information confirms that it can be developed, and further illustrates the folly in releasing the DEIS before the necessary information was submitted.

The DEIS further misconstrues how catastrophic events, like a launch failure, must be considered. When pressed on the glaring omission of safety, wildfire, and other information at the public meetings on the DEIS, FAA staff indicated that NEPA does not require them to consider the impacts of rocket failure because doing so would be a “worst case scenario,” and CEQ regulations do not require worst case scenario analysis. This position fails to properly state or apply the applicable NEPA regulations.

CEQ regulations require an EIS to consider all reasonably foreseeable effects and those effects include:

[I]mpacts which have catastrophic consequences, even if their probability of occurrence is low, provided that the analysis of the impacts is supported by credible scientific evidence, is not based on pure conjecture, and is within the rule of reason.

40 C.F.R. § 1502.22(b)(1). According to the DEIS, medium-large rockets are expected to fail at a rate between 2.5–6%. DEIS at 2-34. The DEIS proposed up to twelve launches per year, suggesting that one rocket would be expected to fail every two years. And FAA has long recognized that “the portion of flight most typically risky to the public (i.e., in the vicinity of the launch site or shortly after initiation of a new stage) has an even higher effective failure probability.” FAA, *Flight Safety Analysis Handbook* at 65–66 (Sept. 2011). “The exposure to launch accident hazards is greatest during the first few minutes after launch,” or directly over Cumberland Island National Seashore. FAA, *Hazard Analysis of Commercial Space Transportation* at 5-1 (Oct. 2, 1995). Thus, rocket failures perfectly illustrate the type of low probability / high consequence events that CEQ regulations require the FAA to consider. The DEIS failed to do so, and that legal error must be remedied now.

3. The FAA must expand the scope of its NEPA review to include related federal actions.

The DEIS also failed to properly include related government actions as part of its environmental review. Under 40 C.F.R. § 1508.25, the scope of an EIS must reflect “the range of actions, alternatives, and impacts to be considered,” including “connected actions.” Connected actions include those that:

- (i) Automatically trigger other actions which may require environmental impact statements.
- (ii) Cannot or will not proceed unless other actions are taken previously or simultaneously.

- (iii) Are interdependent parts of a larger action and depend on the larger action for their justification.

40 C.F.R. § 1508.25(a)(1). In the course of the FAA’s review of this project, it has become clear that licensing Spaceport Camden could require connected actions by at least three other federal agencies.

First, FAA regulations require a license applicant to enter an agreement with the U.S. Coast Guard establishing “procedures for the issuance of a Notice to Mariners prior to a launch and other such measures as the Coast Guard deems necessary to protect public health and safety.” 14 C.F.R. § 420.31. Camden County has begun this process, signing a “Letter of Agreement” with the Coast Guard to develop an access restriction program for the Spaceport Camden site.

Second, Spaceport Camden could require modifications to the operation of Cumberland Island National Seashore, ranging from complete closure of the park during launches to lesser impacts like cessation of legislatively-mandated tours, changes to the ferry schedule, modifications to the fire management plan, clean-up of debris from launches (successful or unsuccessful), or restrictions on campsite and wilderness area access. *See* Letter from J. Stanley to S. Zee, *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* (June 12, 2018).

Third, operating Spaceport Camden could impact Navy training and vessel movements. Specifically, launches from Spaceport Camden could impact the frequency and usage of air and sea space out of Kings Bay. *See* Letter from B. Bolivar to S. Zee, *Comments on the Federal Aviation Administration Draft Environmental Impact Statement for Spaceport Camden, Camden County, Georgia* (June 14, 2018).

The potential actions by the Coast Guard, the National Park Service, and the Navy all fit the criteria set forth in 40 C.F.R. § 1508.25(a)(1), and therefore should have been included in the DEIS as connected actions. But they were not. In fact, none of these connected actions were even identified, as required by CEQ’s scoping regulations. *Id.* §§ 1501.7(a)(5)–(6).

Allowing the FAA to proceed with its NEPA review of the launch site license application without considering the connected actions of other agencies contradicts CEQ regulations, poses the risk of the FAA’s decision prejudicing subsequent agency actions, and risks inconsistent results. These agencies should initiate a comprehensive NEPA review for the entire project and incorporate all necessary agency decisions in one comprehensive review.

4. The FAA must properly consider the variety of ways this project would constructively use Cumberland Island National Seashore.

The DEIS and related documents suggest that the FAA was prepared to use a simplistic and over-narrow interpretation of Section 4(f) of the Department of Transportation Act. The FAA's consideration of Section 4(f) appears to focus on whether Spaceport Camden would require access restrictions on Cumberland Island National Seashore. Although access restrictions certainly constitute a "constructive use" under Section 4(f), there are a variety of other circumstances in which the proposed spaceport could constructively use the National Seashore.

The FAA does not have Section 4(f) regulations but the Federal Highway Administration ("FHWA") does. FHWA regulations state that constructive use occurs when a project's "proximity impacts [*sic*] are so severe that the protected activities, features, or attributes that qualify the property for protection under Section 4(f) are substantially impaired." 23 C.F.R. §774.15(a). Substantial impairment occurs when "the protected activities, features, or attributes of the property are substantially diminished." *Id.*

FHWA regulations list a number of circumstances deemed to constitute a constructive use. *Id.* at (e)(1)–(5). This list includes access restrictions, *id.* at (e)(3), but also a number of other situations—including impairment of the "esthetic features or attributes of a property" or "ecological intrusion" to the property that impacts wildlife habitat. *Id.* at (e)(2) and (5). Although not exhaustive, these additional examples illustrate that constructive use is intended to be broader than simply access restrictions. Accordingly, for the FAA to determine that no constructive use occurs, it must look beyond access restrictions and consider how the operation of Spaceport Camden would diminish the "the protected activities, features, or attributes" of Cumberland Island National Seashore. 23 C.F.R. §774.15(a). This analysis must consider how the noise, light, closure, access restrictions, risk of wildfire, impact of wildfire on wildlife habitat, and the risk of debris and pollution from successful and failed launches will impact Cumberland Island, including its Wilderness Area. Failure to do so will render the FAA's Section 4(f) review legally inadequate.

#### **IV. The FAA Must Deny Camden County's Prior Application And Restart The Application Process.**

To ensure an orderly evaluation of Camden County's changed application and prevent the waste of additional resources, the FAA should require Camden County to withdraw its prior application and submit its small launch site proposal as a new application. Alternatively, the FAA should deny Camden County's prior application and consider the small launch site proposal as a new application. Throughout the application process, Camden County failed to follow the procedures set forth in FAA regulations and failed to provide the information necessary to demonstrate compliance with those standards. As a result, the FAA invested substantial

resources processing an application only for Camden County to change the proposal at the eleventh hour. Allowing Camden County to “toll” further consideration of its application despite significant changes to the underlying proposal is inconsistent with the process set forth in the FAA’s regulations, will lead to substantial uncertainty regarding the timing and sequence of events, and risks setting a dangerous precedent for future applications.

1. Based on the posture and information submitted, Camden County’s prior application must be withdrawn or denied.

The FAA’s regulations clearly do not contemplate indefinitely tolling a pending application to allow for wholesale revision of the application. Under 14 C.F.R. § 413.15, the “FAA reviews and makes a decision on an application within 180 days of receiving an accepted license application.” *See also* 51 U.S.C. § 50905(a)(1). An applicant seeking a license has the burden of supplying the information necessary to demonstrate compliance with the FAA’s safety and environmental regulations. *E.g.* 14 C.F.R. §§ 420.15(c)(1) (“an applicant shall provide the information necessary to demonstrate compliance”) and 413.13 (“an applicant must submit the additional information.”). Tolling an application is permitted, but only when the agency “cannot review an accepted application because of lack of information or for any other reason.” *Id.* § 413.15(b). Further, an application may only be tolled “*until the FAA receives the information it needs or the applicant resolves the issue.*” *Id.* (emphasis added).

The FAA accepted Camden’s application on June 19, 2019 and on (or around) the 178<sup>th</sup> day, Camden County requested that the FAA toll its review. This additional time was not sought to provide additional information regarding the project, but to fundamentally rewrite the application pending before the FAA. Despite *years* of work spent reviewing the medium-large rocket proposal, Camden County failed to resolve basic issues regarding the project including environmental impacts, downrange population management, and fire mitigation. Camden County created this problem by first failing to comply with the FAA’s pre-application review process and then pushing the FAA to deem its application sufficiently complete, despite these unresolved major issues.<sup>5</sup> Had the FAA’s process been followed, the shortcomings in Camden County’s application would have been identified earlier and with less waste of public resources.

The facts on the ground have not changed; Camden County has failed to carry its burden and now seeks to submit a fundamentally different application. Tolling its application will not

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<sup>5</sup> Camden County “bypass[ed] the Pre-App[lication] review” and submitted its application in January 2019 without prior FAA evaluations and despite FAA’s warnings of “numerous inconsistencies” in previous drafts. Email from K. Branham to R. Maday et al., RE: Camden Application for your Review (Jan. 29, 2019), attached. Throughout 2019, Camden County repeatedly urged FAA to consider its application “complete enough” to start the 180 day review period. *E.g.* Letter from J. Starline to K. Wong (May 10, 2019) (“....our application should be ‘complete enough’ to commence the 180-day statutory review...”).

allow Camden County to provide additional information to complete its prior application. Rather, Camden County seeks to submit a completely new application and skirt all the regulatory benchmarks required of a new application.<sup>6</sup> Camden County is submitting a new application, and the FAA must treat it as such. Camden County is no longer pursuing a license for a medium-large rocket facility, so its application must either be withdrawn or denied.

2. Requiring Camden County to submit a new application will result in a more orderly review and will conserve agency resources.

Rather than tolling Camden County's prior application and considering the small vehicle proposal through a new and undefined process, the FAA must process Camden County's small vehicle proposal as a new application under 14 C.F.R. Part 413. FAA regulations set forth a specific process for reviewing new launch site license applications. These regulations are intended to ensure a thorough, orderly, and fair review of that application. These regulations provide clarity and certainty to both the FAA and the license application. Substantively, these regulations require specific information to be submitted in support of a license application. *See* 14 C.F.R. Part 420. Procedurally, these regulations require pre-application consultation, formal acceptance of an application, a "complete enough" determination," a 120 day letter, and a 180 day decision deadline. *Id.* §§ 413.5, 413.11, 413.13, and 413.15.

Should the FAA allow Camden County to "toll" its prior application on the 178<sup>th</sup> day and resume the process with a fundamentally different proposal, it will be impossible for the FAA to apply these requirements in any logical or orderly fashion. Instead, the FAA will review Camden County's application under a new, unwritten process without the benefit of the milestones established in FAA's regulations. Such an *ad hoc* process is sure to result in confusion, wasted resources, and a less thorough review of the new proposal. This *ad hoc*

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<sup>6</sup> Camden County has similarly failed to follow FAA guidance regarding amendments to an application.

An applicant must advise the FAA *in a timely manner* of any proposed material change in any representation contained in its application, including, ... its launch or reentry operations, launch or reentry procedures, classes of payloads, ... the type of vehicle, flight path, launch or reentry site, and launch point, or any safety related [matters] that may affect public health and safety, the safety of property, including government property, or hazards to the environment.

FAA, *License and Permit Application Guide for Applicants* at 6 (emphasis added). Waiting until the 178<sup>th</sup> day of the 180 day review period to fundamentally rewrite its application is not "timely" and therefore contrary to both the letter and the spirit of this FAA guidance.

process also risks setting dangerous precedent for future applicants, suggesting that they too can avoid the requirements of FAA's regulations by pursuing a "toll and amend" strategy.

The FAA should avoid such confusion and the risk of bad precedent by requiring Camden County to submit its current proposal as a new application under the FAA's regulations.

**V. The FAA Must Correct Camden County's Misstatements Regarding Its Regulatory Process.**

Both under NEPA and as a matter of good government, the FAA has an obligation to take a more active role in communicating with the public about this project and its regulatory process. To date, the FAA's only engagement with the public has been to hold two public meetings in April 2018. Outside of these meetings, the FAA has been silent regarding Spaceport Camden. This void has been filled by Camden County, which has made inaccurate statements regarding the project and the FAA's process. These statements include characterizing the FAA's actions or attributing conclusions to the agency. By allowing these statements to go un rebutted, the FAA has perpetuated public misunderstanding about the project. The FAA must be more forthcoming and transparent with the public regarding this project and its agency process, and must ensure that complete and truthful information is available to the public.

A central purpose of NEPA is to make information regarding significant government actions available to the public. *Baltimore Gas & Elec. Co. v. NRDC*, 462 U.S. 87, 97 (1983). NEPA requires federal agencies to encourage and facilitate public involvement "to the fullest extent possible." 40 C.F.R. § 1500.2(d). This includes providing the public with correct, factual information regarding agency actions.

When relevant information is not available during the impact statement process and is not available to the public for comment, the impact statement process cannot serve its larger informational role, and the public is deprived of its opportunity to play a role in the decision-making process.

*N. Carolina Wildlife Fed'n v. N. Carolina Dep't of Transp.*, 677 F.3d 596, 604–05 (4th Cir. 2012) (cleaned up). Providing inaccurate or misleading information "can defeat the first function of an EIS by impairing the agency's consideration of the adverse environmental effects of a proposed project." *South La. Env'tl. Council, Inc. v. Sand*, 629 F.2d 1005, 1011–12 (5th Cir. 1980).

These directives regarding public engagement and accurate information are echoed in FAA guidance. As the FAA's *Community Involvement Manual* explains:

Transparency is fundamental to the success of community involvement. Transparency means that the planning process is as open as possible and that decisions are made public. The community should have an opportunity to contribute to the process and be informed about how their input was considered.

Decisions should be announced and the rationale for the decisions clearly stated. The purpose, procedures, and schedule for conducting the project and community involvement activities should be described as clearly and completely as possible throughout the project.

*Community Involvement Manual* at Section 2.2.7 (February 2016).<sup>7</sup>

As this project moves into the next phase, the FAA must take a greater role in public education and ensure that complete, accurate information is made available to the public. The FAA cannot continue to allow Camden County—the entity it is charged with regulating—to be the sole source of information regarding the FAA’s actions, process, and decisions.

1. The FAA allowed the use of a misleading and legally meaningless term in the DEIS.

The most concerning example of the FAA’s failure to ensure openness and transparency regarding Spaceport Camden is the use of the term “authorized person” in the DEIS. This term is used throughout the document, including four times in the DEIS’ Executive Summary alone. Other uses of the term in the DEIS include:

- “The hazard area, which is evacuated of non-authorized persons prior to launch is designed to minimize risk to people.” DEIS at 4-69.
- “...provisions for ‘authorized persons’ would also be determined and implemented (e.g., residents, vacation house owners and permit-holding campers, NPS personnel).” *Id.*, Executive Summary at 11, 2-31, 2-32 (Table 2.1-6), and 4-62.
- “...a Security Plan that defines the process for ensuring that any unauthorized persons ... are not within FAA-approved hazard area or, if they are, that they conform to criteria in 14 CFR Parts 417 and 420.” *Id.* at 2-28 and Executive Summary at 9
- “These security and safety zones would result in the establishment of hazard and closure areas to prevent the public and other nonauthorized personnel from accessing the area during hazardous operations (i.e., launches/landings, wet dress rehearsals, and static fire engine tests).” *Id.* at 4-58.
- “The up-to-24 allowed campers per day at Brickhill Bluff, plus other residents and potential persons at habitable structures on the north end of Cumberland Island (Squaw Town and Plum Orchard) and Little Cumberland Island would be considered ‘authorized persons’ and could remain if they wished. The County has discussed the option to offer anyone who is an ‘authorized person’ who wants to depart for the launch window, a

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[https://www.faa.gov/about/office\\_org/headquarters\\_offices/apl/enviro\\_policy\\_guidance/guidance/media/FAA\\_CIM.pdf](https://www.faa.gov/about/office_org/headquarters_offices/apl/enviro_policy_guidance/guidance/media/FAA_CIM.pdf)

complimentary ride and/or appropriate temporary accommodations including ‘VIP’ viewing passes for the launch.” *Id.* at 4-59 and 4-95.

Yet in internal communications, the FAA acknowledges that “authorized personnel” is a legally meaningless term and was included in the DEIS at the request of Camden County.

Bottom line. Authorized personnel is NOT an FAA term or definition. It is something the proponent, Camden County, put in the dEIS to describe people who may be able to remain in certain areas of Cumberland and Little Cumberland Island.

Email from P. Underwood to H. Price, Re: Spaceport Camden (April 2, 2018), attached. Camden County’s consultant, Andrew Nelson, later acknowledged that “authorized persons” was “a term of convenience” devoid of any statutory or regulatory meaning. Mary Landers, “Cumberland Island landowners object to Camden spaceport plans,” *Savannah Morning News* (April 9, 2018).<sup>8</sup>

“The very purpose of public issuance of an environmental impact statement is to ‘provid[e] a springboard for public comment.’” *N. Carolina Wildlife Fed’n*, 677 F.3d, at 603 (quoting *Dep’t of Transp. v. Pub. Citizen*, 541 U.S. 752, 768 (2004) (alteration in original)). By releasing and receiving public comment on a DEIS that heavily relied on this meaningless term, the FAA contributed to public misunderstanding regarding this project. As the FAA prepares a supplemental EIS, it must remove any reference to this contrived term and provide the public with complete, accurate information regarding the risks this project poses to the public and potential access restrictions that would be required for its operation.

2. Camden County publicly mischaracterized the status of the FAA’s NEPA review.

Beyond the DEIS, the FAA’s public silence has allowed Camden County to repeatedly mischaracterize the status of the project and the FAA’s regulatory process. On November 7, 2019, Camden County issued a press release stating that the FAA “notified Camden County, Georgia that it has set a date for the release of the Final Spaceport Camden Environmental Impact Statement” and that the FAA “announced today that intends to issue and distribute the Final EIS on December 16, 2019.”<sup>9</sup> In fact, in a letter sent on October 17<sup>th</sup>, the FAA had reached the exact opposite conclusion regarding its NEPA review:

Per 14 CFR § 420.15(b), Camden County has not provided the FAA with certain information for the FAA to analyze the environmental impacts associated with the

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<sup>8</sup> <https://www.savannahnow.com/news/20180409/cumberland-island-landowners-object-to-camden-spaceport-plans>

<sup>9</sup> <https://www.camdencountyga.gov/DocumentCenter/View/11380/FAA-Sets-Date-to-Release-and-Distribute-Final-Spaceport-Camden-EIS>

operation of the proposed launch site. Specifically, Camden County has not submitted the coastal consistency review to the Georgia Department of Natural Resources, *thereby preventing the FAA from being able to complete its review under NEPA.*

Letter from K. Wong to J. Starline (Oct. 17, 2019) (emphasis added).<sup>10</sup>

Yet because Camden County's press release went uncorrected by the FAA, the inaccurate statements *attributed to the FAA* were disseminated by the media and furthered the public's misunderstanding regarding the project.<sup>11</sup> Contrary to the law and guidance requiring factual accuracy and transparency, the FAA's silence perpetuated public misunderstanding regarding this project.

3. Camden County publicly mischaracterized the decision to toll its application and the sufficiency of its safety information.

On December 17 and 19, 2019, Camden County issued press releases stating that the "Camden County Board of Commissioners and the Federal Aviation Administration (FAA) have agreed to toll" review of the application,<sup>12</sup> and that this decision was reached "in coordination with the FAA."<sup>13</sup> Further, the December 17<sup>th</sup> press release asserts that:

The public safety review performed to date has demonstrated that a medium-large launch vehicle with a first-stage return would meet all applicable public safety requirements, even when conservative assumptions are used.

Similar assurances that all safety requirements had been met are repeated in the December 19<sup>th</sup> press release. Described most charitably, these statements seek to bend the truth.

In fact, in a December 16<sup>th</sup> letter to Camden County, the FAA made clear that the project was tolled at the request of Camden County. Letter from K. Wong to J. Starline (Dec. 16, 2019). Further, and contrary to Camden County's repeated and sweeping assurances regarding safety, the FAA noted that issues related to the risk of fire "have not yet been satisfactorily resolve[d]." *Id.* In other words, all public safety requirements had *not* been met.

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<sup>10</sup> Subsequent correspondence makes clear that the missing environmental information was never provided by Camden County.

<sup>11</sup> Dave Williams, "FAA sets December release of environmental impact study on Spaceport Camden," Atlanta Business Chronicle (Nov 7, 2019) <https://www.bizjournals.com/atlanta/news/2019/11/07/faa-sets-december-release-of-environmental-impact.html>.

<sup>12</sup> <https://www.camdencountyga.gov/DocumentCenter/View/11456/Camden-County-and-FAA-Agree-to-Toll-Licensing-Decision-Clock-as-Application-Progresses>

<sup>13</sup> <https://www.camdencountyga.gov/DocumentCenter/View/11459/Camden-County-Outlines-Decision-to-Refocus-FAA-Review-to-Small-Launch-Vehicles>

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Similar factual inaccuracies are found in Camden County's statements to the press regarding whether the prior application covered small rockets, whether International Traffic in Arms Regulations review is necessary to release application materials, the launch azimuths under consideration, and the scope of risk analysis actually performed. All of these statements invoke FAA action or the FAA's regulatory process, yet the agency has not sought to correct any of them.

The FAA is not required to "fact check" every statement made by Camden County. But it is required to be transparent, clear, and forthright regarding its actions to the public. Further, the FAA has an obligation to ensure that complete and accurate information is made available to the public. The FAA cannot rely on Camden County to speak for it, nor can it continue scrutinizing the Spaceport Camden project entirely behind closed doors. The public deserves and is legally entitled to full and complete information regarding the impacts and risks of Spaceport Camden. As this project moves into the next phase, the FAA must recommit to its standards of transparency, accuracy and forthrightness with respect to the public.

### **CONCLUSION**

Thank you for your consideration of these comments. If you have any questions or concerns, please do not hesitate to contact me at (404) 521-9900 or [bgist@selcga.org](mailto:bgist@selcga.org).

Sincerely,



Brian L. Gist

#### Enclosures

cc: Mr. Kenneth Wong (FAA)  
Ms. Joyce Stanley (DOI)  
Mr. Stan Austin (NPS)  
Cdr. Norm Witt (Coast Guard)  
Rear Adm. Gary Mayes (Navy)  
Mr. Ted Boling (CEQ)  
Mr. James Starline (Camden County Commission)

**From:** [Branham, Katherine \(FAA\)](#)  
**To:** [Murray, Daniel \(FAA\)](#); [Braun, Thomas \(FAA\)](#); [Underwood, Pam \(FAA\)](#); [Murray, Michelle \(FAA\)](#); [Zee, Stacey \(FAA\)](#); [Jackson, Stewart \(FAA\)](#); [Repcheck, Randy \(FAA\)](#); [Smiley, Gunther \(FAA\)](#); [Sisneros, Emily \(FAA\)](#); [Wilde, Paul \(FAA\)](#)  
**Subject:** Camden Agenda  
**Date:** Friday, August 11, 2017 1:27:15 PM  
**Attachments:** CC4-IndividualRisk.pptx  
CamdenCountyPhase5-DRAFT\_20170612-bis.pptx  
INTERNAL Camden Spaceport Individual Risk ver 1 (002).pptx  
image001 - Data.png  
Small LV PI Analysis.pptx

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All,

Please see the 4 attached Resources provided by Camden (*CamdenCountyPhase5-DRAFT\_20170612-bis*, *CC4- Individual Risk*, *image001-Data*, and *Small LV PI Analysis*) which may be referenced in the Camden TIM. I have also attached Tom's Internal Analysis (*INTERNAL Camden Spaceport Individual Risk Ver1*) for your reference and records. Additionally, we provided a general agenda to Camden (Black), but have a more detailed internal one (Grey) to guide the discussion, as appropriate.

### General Agenda

1. Overview of Concerns
  - Individual Risk
  - Mitigating risk (Pc and Ec)
    - Mitigating Factors – Population present vs. moved
  - Possible Restrictions
2. Ground Rules and Assumptions
  - What assumptions are made?
    - i. Launch Vehicle Demonstration
    - ii. Risk from Part 420 Appx C
  - What failure modes are included in the analysis?
3. Individual Risk Methodology
  - Based on the census population or individual risk?
  - More information is required for proper review

If you have any questions, please do not hesitate to ask.

Thank you,

Katie Branham  
Aerospace Engineer  
Operations Integration Division (AST-500)  
FAA, Office of Commercial Space Transportation  
(321) 634-2795

---

**From:** Murray, Daniel (FAA)  
**Sent:** Thursday, August 10, 2017 7:02 PM  
**To:** Branham, Katherine (FAA) <[katherine.branham@faa.gov](mailto:katherine.branham@faa.gov)>; Braun, Thomas (FAA)

<[Thomas.Braun@faa.gov](mailto:Thomas.Braun@faa.gov)>; Underwood, Pam (FAA) <[Pam.Underwood@faa.gov](mailto:Pam.Underwood@faa.gov)>; Murray, Michelle (FAA) <[michelle.murray@faa.gov](mailto:michelle.murray@faa.gov)>

**Cc:** Zee, Stacey (FAA) <[Stacey.Zee@faa.gov](mailto:Stacey.Zee@faa.gov)>; Jackson, Stewart (FAA) <[stewart.jackson@faa.gov](mailto:stewart.jackson@faa.gov)>; Repcheck, Randy (FAA) <[Randy.Repcheck@faa.gov](mailto:Randy.Repcheck@faa.gov)>

**Subject:** RE: Camden Agenda

Some quick thoughts on Camden:

1. I believe Camden is applying for a site license to host “**liquid-fueled, small to medium-large lift-class, orbital and suborbital vertical launch vehicles**”. At least, this is what we’ve been looking at for the EIS.
2. 420.19 (c) states: “If an applicant proposes to have more than one weight class of orbital expendable launch vehicles flown from a launch point, the applicant shall demonstrate that **the heaviest weight class planned to be flown** from the launch point can be flown from the launch point safely.”
3. The materials I’ve seen (CamdenCountyPhase5-DRAFT\_20170612-bis.pptx) describe an analysis of a “small sized, two stage, liquid fueled” rocket. An analysis of a “small” launch vehicle does not satisfy 402.19 (c). If they want to change their approach to only small launch vehicles to satisfy the location review, then I think they need to change the approach to the EIS. We can’t put out an EIS that describes vehicles that look like Falcon 9s when we they’ve only demonstrated that a Vector-R might be safe enough.
4. And I’m not sure a small vehicle is safe enough. The assumptions in the are described as “conservative”, but that is arguable. I think the casualty area (1900 sq. ft) is pretty small. That’s about 44 ft x 44 ft. 420 Appendix C (which is no doubt conservative) suggests something about 450 times larger for a small ELV. Even if we think that’s too big, I think they need to speak to why they are not assuming an explosive impact, particularly when they are talking thrust termination.
5. I think their failure mode allocation is not very conservative either – on-trajectory failures should get a higher allocation considering they are planning to directly overfly populated areas. Speaking of that, I don’t see any mention of an overflight gate.

Just thought I’d pass this along. If I’m looking at the wrong data/analyses or I’m off-base somehow, please let me know.

Thanks,

Dan

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---

**From:** Branham, Katherine (FAA)  
**Sent:** Thursday, August 10, 2017 12:09 PM  
**To:** Braun, Thomas (FAA); Underwood, Pam (FAA); Murray, Michelle (FAA)  
**Cc:** Murray, Daniel (FAA); Zee, Stacey (FAA); Jackson, Stewart (FAA); Repcheck, Randy (FAA)  
**Subject:** Camden Agenda

Tom,

Please see the proposed agenda for our tag-up tomorrow with Camden. If you have any corrections

please send them by COB so I can forward onto the Applicant.

#### Camden Agenda

1. Overview of Concerns
  - Individual Risk
  - Mitigating risk (Pc and Ec)
  - Possible Restrictions
2. Ground Rules and Assumptions
3. Individual Risk Methodology
4. Other

Thank you!

Respectfully,

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**From:** [Braun, Thomas \(FAA\)](#)  
**To:** [Braun, Thomas \(FAA\)](#); [Branham, Katherine \(FAA\)](#)  
**Subject:** RE: camden notes  
**Date:** Friday, August 11, 2017 3:28:54 PM

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## Agenda

### 1. Overview of Concerns

- Individual Risk
  - During the launch location review, AST observed that approximately 5 miles east of the launch pad, trajectories had the potential to overfly (55) cottages (110 people total) on Cumberland and Little Cumberland Island
  - Camden Spaceport indicated that the county could not remove the people from the islands
  - AST informed Camden that although Individual Risk is not a requirement for the issuance of a Part 420 Spaceport license, it is a requirement for Part 417
    - Furthermore, AST has never issued a waiver on individual risk (Pc)
  - Aerospace Corporation, a contractor to Camden, indicated they had looked at the Individual Risk and determined it was within requirement ( $< 1E-06$ )
    - Aerospace further stated they could provide AST the trajectory data, Pc results and a report
  -
- Mitigating risk (Pc and Ec)
  - It is unprecedented to launch over populated areas; with the 100 deg azimuth, it appear that the trajectory is within  $< 0.5$  mile of cottages
  - it's just not standard practice to fly over the public until the vehicle is further downrange
  - Not being able to relocate individuals on these Islands eliminates a tool for mitigating risk (Pc and Ec)
  - Can Camden relocate these people?
- Possible Restrictions
  - It may be possible to launch out of Camden
  - Can't really tell right now – depends upon a lot of factors – class of vehicle, POF (high reliability), propellants, casualty area, winds
  - it depends upon the destruct lines – it is possible to design a system to protect folks, but it depends where you draw the destruct lines
  - It is possible to have mission opportunities for Camden, but Pc is a potential issue that could limit launch availability

### 2. Ground Rules and Assumptions

- Winds were coastal winds; are they seasonal?

- POF = 10% for 1<sup>st</sup> stage
- Clarification required on break down of POF for the large launch vehicle
  - POF = (0.10); COT=70%; MFT = 30%; LOT = ?
- Current break down of POF for the small launch vehicle
  - POF = (0.10); COT=30%; MFT = 40%; LOT = 30%
- Were dispersions used?
- What time does the IIP clear the coast line?

### 3. Individual Risk Methodology

- Aerospace has its own trajectory simulation tool
- Run a trajectory to orbit at different azimuths (60, 85, 100, 120, 127)
- Simulate failures at random times and random rates (for MFT)
  - **AST Question:** What does “random times” mean?
  - **AST Question:** Are failures assessed at every second in the trajectory?
- Also execute OT trajectories using a Monte Carlo method that results in 100,000 cases
  - **AST Question:** Do the MFTs follow the same Monte Carlo process?
    - **AST Comment:** MFT trajectories are more unpredictable and tend to extend farther downrange due to off-nominal behavior.
  - **AST Question:** Are trajectory (G&P) uncertainty applied?
    - **AST Comment:** Adding dispersions would most likely extend Pc (unsheltered) contours in downrange and cross range
    - **AST Comment:** Data delivered to AST did not include trajectory (G&P) uncertainty or MFT data
  - **AST Question:** Are other dispersions applied?
- Refer to Pc presentation
  - Do Camden Pc results represent a maximum Pc? or do they represent the sum of the Pc at the cottages?
  - Individual risk does not only apply just to population in the cottages; it can be anywhere on the island
  - Contours need to be combined for all individual failure modes and will result in a larger contour.
  - 
  - Individual risk does not only apply to the cottages; it can be anywhere on the island;
  - 
  - FAA would require a contour
  - Camden would not be authorized to initiate a launch unless Camden knows no one is near the 1E-06 contour
  - Camden needs to do surveillance
  - Best approach would be to do a DOL risk analysis
  - FAA did approve launches with hazard areas determined using statistical winds
  - We should only be using winds the vehicle could fly through
  - In the end, the destruct lines will only be good for the winds they are designed to. Hazard areas need to be defined and surveillance will be required.
- 150 seconds too long, look at 30-50 seconds
-

- Camden provided trajectory (100° azimuth) , wind and population data
  - Dispersions, Malfunction Turn trajectory and debris list were not provided
  - RTLS trajectory data did not coincide with 100° azimuth trajectory data at separation event
- Camden also delivered Pc results to AST for the 100° and 127° azimuth cases (for the large launch vehicle), but there was no accompanying report

#### 4. Other

- Under certain wind conditions, debris can blow towards Cumberland Islands, and hazard people

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**From:** [Thomas.Braun@faa.gov](mailto:Thomas.Braun@faa.gov)  
**To:** [katherine.branham@faa.gov](mailto:katherine.branham@faa.gov)  
**Cc:** [Thomas.Braun@faa.gov](mailto:Thomas.Braun@faa.gov)  
**Subject:** FW: Camden Ec study for pops on Cumberland Island  
**Date:** Thursday, November 08, 2018 5:01:16 PM  
**Attachments:** image001.png  
image002.png  
image003.png  
image004.png  
image005.png

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---

**From:** Braun, Thomas (FAA)  
**Sent:** Wednesday, October 31, 2018 4:46 PM  
**To:** Murray, Daniel (FAA) <Daniel.Murray@faa.gov>  
**Cc:** Jackson, Stewart (FAA) <stewart.jackson@faa.gov>; Underwood, Pam (FAA) <Pam.Underwood@faa.gov>; Zee, Stacey (FAA) <Stacey.Zee@faa.gov>; Searight, Howard (FAA) <Howard.Searight@faa.gov>; Braun, Thomas (FAA) <Thomas.Braun@faa.gov>  
**Subject:** RE: Camden Ec study for pops on Cumberland Island

Dan,

For an F9 type of rocket with applicable POFs, yes greater than 200 people would start giving Camden issues with respect to Ec (1E-04) at certain azimuths.

Assuming the people are located where the cottages are, flying south would reduce the risk due to the lower number of cottages at those southern azimuths.

I believe Camden would have a difficult time flying with 300 people on the island.

Keep in mind, individual risk could still be an issue resulting in the need for evacuation or road blocks.

Note, a smaller vehicle (i.e. Rocket Lab) would reduce the casualty area, but the reliability would be less (increasing the POF).

I believe slide 34 below is a good summary for Camden.

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---

**From:** Murray, Daniel (FAA)  
**Sent:** Wednesday, October 31, 2018 4:09 PM  
**To:** Braun, Thomas (FAA) <[Thomas.Braun@faa.gov](mailto:Thomas.Braun@faa.gov)>  
**Cc:** Jackson, Stewart (FAA) <[stewart.jackson@faa.gov](mailto:stewart.jackson@faa.gov)>; Underwood, Pam (FAA) <[Pam.Underwood@faa.gov](mailto:Pam.Underwood@faa.gov)>; Zee, Stacey (FAA) <[Stacey.Zee@faa.gov](mailto:Stacey.Zee@faa.gov)>; Searight, Howard (FAA) <[Howard.Searight@faa.gov](mailto:Howard.Searight@faa.gov)>  
**Subject:** RE: Camden Ec study for pops on Cumberland Island

Tom,

Thanks for sending this along. I apologize I did not have a chance to call you back these past couple of days.

From your results, it appears safe (and more simple maybe) to say that, knowing things will vary depending upon what exactly is launched (for Pf, debris list, azimuth, etc), it appears that somewhere around 200 people or so on the island is where they could start to have trouble making Ec. That would require them to fly a more southerly azimuth (over big Cumberland) or find a customer with a demonstrated high reliability. Upwards of 300 people, they could have a hard time flying at all. Would you agree with that?

Thanks,

Dan

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---

**From:** Braun, Thomas (FAA)  
**Sent:** Wednesday, October 31, 2018 3:46 PM  
**To:** Murray, Daniel (FAA) <[Daniel.Murray@faa.gov](mailto:Daniel.Murray@faa.gov)>  
**Cc:** Braun, Thomas (FAA) <[Thomas.Braun@faa.gov](mailto:Thomas.Braun@faa.gov)>; Jackson, Stewart (FAA) <[stewart.jackson@faa.gov](mailto:stewart.jackson@faa.gov)>  
**Subject:** FW: Camden Ec study for pops on Cumberland Island  
**Importance:** High

Dan,

I briefed Stewart on the slides and results. If you would like to sit down to discuss the results, please let me know when you may have time.

Enclosed is the excel file documenting the Ec study for varying population (and POF) on Cumberland Island.

- I have also included the Camden Individual risk presentation I did in July of 2017. The populations used were 110 people in 55 cottages (2 per cottage).
  - Be aware that the individual risk analysis demonstrated that **individual risk could be a problem, specifically for the malfunction turn (MFT) response mode.**
  - Refer to slides 33 and 34 in the presentation for conclusions
    - Note the upper reliability number of 1% quoted below may not be the upper threshold.

## Individual Risk: Echostar-23 Conclusions

- Vehicle Reliability is very important! **(between 0.1% and 1%)**
- OT and LOT trajectories (without dispersions) indicated Pc results were within limits
  - Adding dispersions would most likely extend Pc (unsheltered) contours in downrange and crossrange
- MT trajectories (without dispersions) indicated Pc results were NOT within limits
  - Large Ec and Max Pc were observed
  - **MT trajectories extend farther downrange due to off-nominal behavior**
  - MT trajectories used were based of mission rules for a launch at KSC
    - **Proper mission rules for Camden would be required to protect individuals on the Islands**
- Winds used for assessment were average winds, not worst case winds

# Individual Risk: Echostar-23 Conclusions

- Federal Ranges avoid launching over populated areas near the launch area
  - Not standard practice to fly over public land until you are further downrange
- Not being able to relocate individuals on these Islands eliminates a tool for mitigating risk (Pc and Ec)
- It may be possible to launch from Camden, however the following may be required:
  - A Launch vehicle with a high reliability (or extremely low POF)
  - Proper mission rules in place to account for risk (i.e. destruct lines, winds, etc.)
    - it will be challenging to develop real mission rules; destruct lines will most likely be very tight; need to make sure 3- $\sigma$  can fly through
  - Individual risk does not only apply to the cottages; it can be anywhere on the island; Camden may need to put road blocks in place to close areas
  - High reliability and strict launch conditions could limit mission opportunities for Camden and launch availability

Federal Aviation Administration

AST Commercial Space Transportation

Monday July 24, 2017 | 34

The acceptable Ec risk is a function of the trajectory azimuth, POF, casualty area and the population on the island.

For this analysis, the casualty area was held constant. The casualty area was a result of an F9 debris list.

The analysis was done by varying the number of people on the 55 cottages located on Cumberland Island. The populations varied as follows:

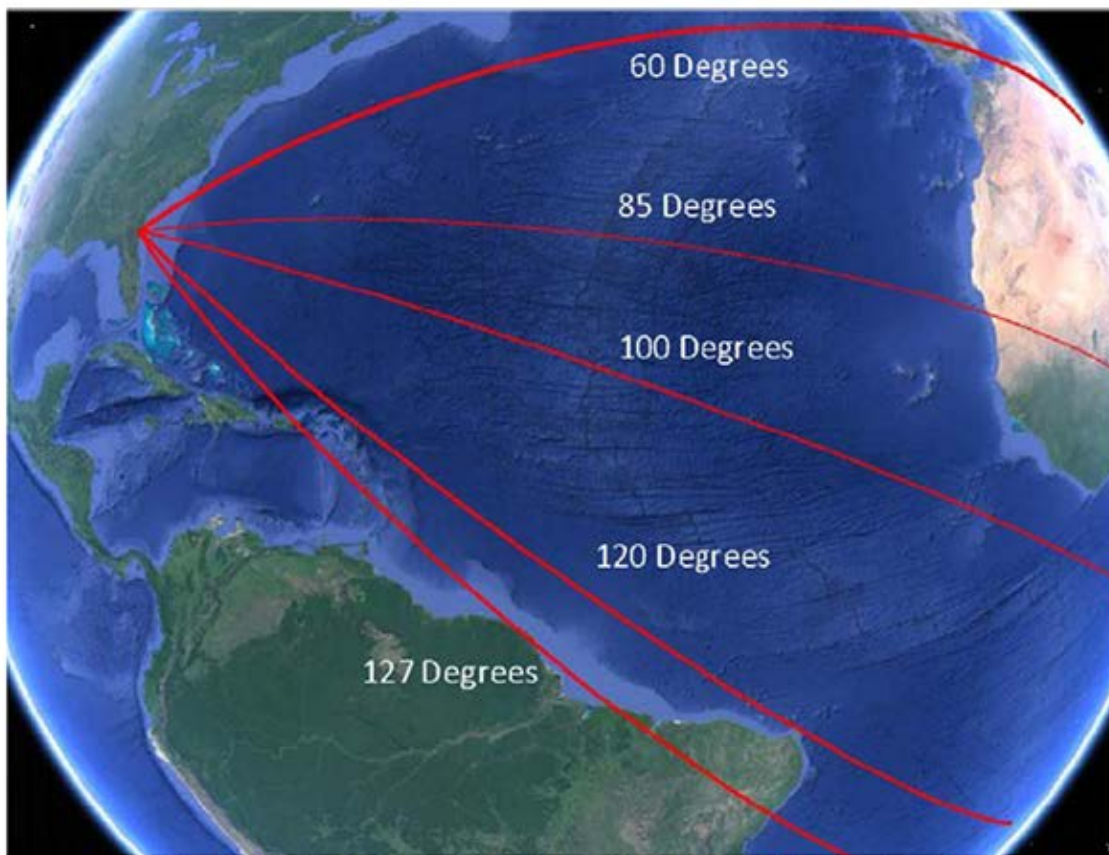
- 2 people per cottage \* 55 cottages = 110 people
- 4 people per cottage \* 55 cottages = 220 people
- 6 people per cottage \* 55 cottages = 330 people

The analysis considered the following assumptions:

- Data from the F9 Echostar-23 (due east) Mission translated to Camden launch pad and rotated to the appropriate azimuth
- MFT trajectories were based on mission rules for a GTO launch at KSC
  - I did not use the trajectory data provided by Camden.; SpaceX data was deemed more realistic
- December wind (worst case seasonal wind)
- POF (4.7% first stage)
  - MFT (2.75%)
  - OT (1.13%)
  - LOT (0.08%)

- Cumberland Island population only
- No RTLS
- No dispersions (due to problems translating F9 Echostar-23 .mcov format data)
- Risk from ships is not included in the Ec number.
- Overflight risk not included
  - The most recent Ec for the F9 due to overflight of Europe is 8E-06
  - The most recent Ec for the F9 due to overflight of Africa (GTO missions) is 1E-06

From Camden's application, here are the trajectories for the following azimuths. My analysis considers 85, 100 and 120 degrees – this would be 1E-06 for overflight of Africa.



**EXHIBIT A2-9. Range of Launch and Landing Azimuths Evaluated**

Although Camden provides results for all of the azimuths, Camden only provided data for only the 100 deg azimuth. The POF used by Camden was 10% (30% OT, 30% LOT, 40% MFT).

Below is a comparison of results between Camden and the FAA. FAA is typically 10E-06 larger. Note, POF, casualty area and trajectories will be different. See slide 37.

# 1<sup>st</sup> Stage Ec Results: Echostar-23

## AST Ec only include Cumberland Islands

Echostar-23 Trajectory	OT Ec	LOT Ec	MT Ec	Total Ec
60° azimuth	3.45E-06	8.33E-06	4.09E-05	5.268E-05
75° azimuth	6.28E-06	1.28E-05	6.32E-05	8.228E-05
85° azimuth	4.98E-06	1.04E-05	5.04E-05	6.578E-05
100° azimuth	3.02E-06	6.55E-06	3.23E-05	4.187E-05
120° azimuth	2.18E-06	4.04E-06	1.97E-05	2.592E-05
127° azimuth	2.05E-06	4.41E-06	2.25E-05	2.896E-05

Camden Ec Results  
x 1E-04  
Uses different  
POF, SV, CA

Operation Type	Trajectory Azimuth	Stage 1 Monte Carlo
Launch	60	0.43
	85	0.70
	100	0.53
	120	0.28
	127	0.16

Federal Aviation Administration

AST Commercial Space Transportation

Monday July 24, 2017 | 37

I spoke with Tom Ricketson regarding the Falcon 9. The following response modes are modelled for launch :

- OT On-Trajectory
- LOT Loss of Thrust
- MFT Malfunction Turn (tumble turn)
- RA Random Attitude
- IA Incorrect Azimuth

Currently, the total POF for a F9 is 3.9% (0.039). This is modelled as 1.6% (0.016) for first stage and 2.1% (0.021) for second stage.

This sums up to 3.7%. The remaining 0.2% is due to staging and the fairing jettisons.

For the first stage, the percentages break down to the following:

- OT 0.016 \* .566
  - LOT 0.016 \* .038
  - MFT 0.016 \* .324
  - RA 0.016 \* .063
  - IZ 0.016 \* .009
- 1.0

To assess population sensitivity with POF sensitivity, within the excel file refer to columns:

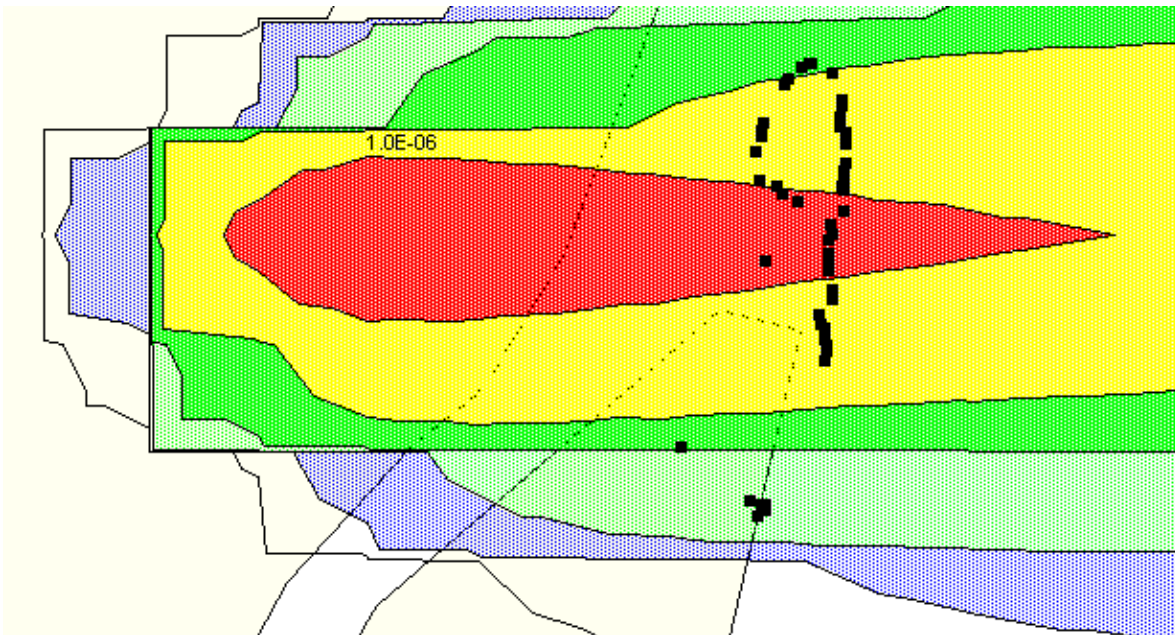
- I (Ec) and J (POF) 4.7% 1<sup>st</sup> stage POF (Original analysis)

- L (Ec) and M (New F9 POF) 1.6% 1<sup>st</sup> stage POF
- O (Ec) and P (Part 420 POF) 10% 1<sup>st</sup> stage POF (from Appendix C Part 420)

I believe the 85 degree azimuth case would be most representative of a trajectory flying over populated regions on the Island. See image below.

Note, the 100 deg and 120 deg cases seem to avoid most of the cottages. Perhaps that is why Camden is providing data for the 100 deg azimuth case.

Other Individual risk plots are in the July 2017 presentation.



**Note, the MPL can be considerable given all of the people are located on the island.**

The excel spreadsheet indicates that risk is within the 1E-04 constraint for the 110 population.

For the 220 population, the 85 deg azimuth, POF=4.7%, ( $E_c = 1.37E-04$ ) could violate the 1E-04 constraint (if dispersions, overflight and the RA and IA response modes are included)

For the 220 population, the 85 deg azimuth, POF = 10%, ( $E_c = 2.49E-04$ ) will violate the 1E-04 constraint

For the 220 population, the 100 deg azimuth, POF = 10%, ( $E_c = 1.58E-04$ ) violated the 1E-04 constraint.

For the 330 population, the 85 deg azimuth, POF = 4.7%, ( $E_c = 2.05E-04$ ) will violate the 1E-04 constraint

For the 330 population, the 85 deg azimuth, POF = 10%, ( $E_c = 3.73E-04$ ) will violate the 1E-04 constraint

For the 330 population, the 100 deg azimuth, POF = 10%, ( $E_c = 2.36E-04$ ) will violate the 1E-04 constraint

For the 330 population, the 120 deg azimuth, POF = 10%, ( $E_c = 1.48E-04$ ) will violate the 1E-04 constraint

The current F9 POF would make all of the  $E_c$  violations above go away. Within the excel file, refer to columns L (new  $E_c$ ) and M (new POF) for POF sensitivity.

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**From:** [Daniel.Murray@faa.gov](mailto:Daniel.Murray@faa.gov)  
**To:** [Thomas.Braun@faa.gov](mailto:Thomas.Braun@faa.gov); [stewart.jackson@faa.gov](mailto:stewart.jackson@faa.gov)  
**Cc:** [Randy.Repcheck@faa.gov](mailto:Randy.Repcheck@faa.gov)  
**Subject:** RE: Camden LCI pop number  
**Date:** Friday, October 12, 2018 1:55:23 PM

---

Tom,

Thanks for the questions. I am looking for the number of people on the island that would bust Ec. Please start with the F9 if that's what they have proposed. Sensitivity studies (parametric maybe based on Pf or casualty area) would be helpful as well, but let's start with what they've proposed. If it is 10 people, 100 people or 1,000 people, it will make a big difference.

Thanks,

Dan

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---

**From:** Braun, Thomas (FAA)  
**Sent:** Friday, October 12, 2018 1:30 PM  
**To:** Jackson, Stewart (FAA) <[stewart.jackson@faa.gov](mailto:stewart.jackson@faa.gov)>  
**Cc:** Murray, Daniel (FAA) <[Daniel.Murray@faa.gov](mailto:Daniel.Murray@faa.gov)>; Repcheck, Randy (FAA) <[Randy.Repcheck@faa.gov](mailto:Randy.Repcheck@faa.gov)>; Braun, Thomas (FAA) <[Thomas.Braun@faa.gov](mailto:Thomas.Braun@faa.gov)>  
**Subject:** RE: Camden LCI pop number

Dan,

I'll try and look into this next week, but I would like to know what exactly you are looking for and the vehicle.

Keep in mind finding the maximum number of people is a function of the launch vehicle. The vehicle will dictate the debris list, and the POF. The azimuth of the trajectory is also important.

Camden has suggested a Falcon 9 with a relatively low POF. A smaller vehicle (most likely at Camden) will have a smaller debris list, but a higher POF. Camden also selected an azimuth that made their case better.

So individual risk should not change. It is the risk of one person at a designated location. The Ec is what would change.

Just for clarification, are you interested in the Ec or the Pc?

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---

**From:** Jackson, Stewart (FAA)  
**Sent:** Friday, October 12, 2018 11:39 AM  
**To:** Braun, Thomas (FAA) <[Thomas.Braun@faa.gov](mailto:Thomas.Braun@faa.gov)>  
**Cc:** Murray, Daniel (FAA) <[Daniel.Murray@faa.gov](mailto:Daniel.Murray@faa.gov)>; Repcheck, Randy (FAA) <[Randy.Repcheck@faa.gov](mailto:Randy.Repcheck@faa.gov)>  
**Subject:** Fwd: Camden LCI pop number

Tom,  
Could you please respond to Dan Murray's attached request regarding Camden. I am not sure if you can grab hold of the appropriate data to do this quick analysis. However, please let me know if this analysis can be done quickly with some Fidelity.

Thanks  
Stewart

Sent from my iPhone

Begin forwarded message:

**From:** "Murray, Daniel (FAA)" <[Daniel.Murray@faa.gov](mailto:Daniel.Murray@faa.gov)>  
**Date:** October 12, 2018 at 6:49:12 AM EDT  
**To:** "Jackson, Stewart (FAA)" <[stewart.jackson@faa.gov](mailto:stewart.jackson@faa.gov)>  
**Cc:** "Repcheck, Randy (FAA)" <[Randy.Repcheck@faa.gov](mailto:Randy.Repcheck@faa.gov)>, "Reimold, Dorothy (FAA)" <[Dorothy.Reimold@faa.gov](mailto:Dorothy.Reimold@faa.gov)>, "Searight, Howard (FAA)" <[Howard.Searight@faa.gov](mailto:Howard.Searight@faa.gov)>, "Underwood, Pam (FAA)" <[Pam.Underwood@faa.gov](mailto:Pam.Underwood@faa.gov)>, "Zee, Stacey (FAA)" <[Stacey.Zee@faa.gov](mailto:Stacey.Zee@faa.gov)>, "Wilde, Paul (FAA)" <[Paul.Wilde@faa.gov](mailto:Paul.Wilde@faa.gov)>, "Wong, Ken (FAA)" <[Ken.Wong@faa.gov](mailto:Ken.Wong@faa.gov)>, "Kelly, Michael S (FAA)" <[Michael.S.Kelly@faa.gov](mailto:Michael.S.Kelly@faa.gov)>, "Chaudhary, Ravi (FAA)" <[ravi.chaudhary@faa.gov](mailto:ravi.chaudhary@faa.gov)>, "Branham, Katherine (FAA)" <[katherine.branham@faa.gov](mailto:katherine.branham@faa.gov)>, "Wright, Mark (FAA)" <[Mark.Wright@faa.gov](mailto:Mark.Wright@faa.gov)>, "Murray, Michelle (FAA)" <[michelle.murray@faa.gov](mailto:michelle.murray@faa.gov)>  
**Subject:** Camden LCI pop number

Stewart,

I'd like to request that AST-300 perform a computation to estimate the maximum number of people who could be present on Little Cumberland Island during a launch from the proposed Camden site. I'm sure we are missing some data we'd normally need, so just a best estimate based on what we know now will suffice.

We have meetings with the LCI representatives and Camden representatives coming up in the next two weeks. This information would really help us understand the potential issue that overflight of LCI might pose, helping us to best prepare for those meetings.

Please let me know if you have questions.

Thanks,

Dan

Dan Murray  
FAA, Office of Commercial Space Transportation  
Manager, Space Transportation Development Division (AST-100)  
800 Independence Ave. SW, Room 325  
Washington, DC 20591  
Office: (202) 267-9237  
Cell: (b) (6)

Sent from my iPhone

**From:** [Steve Howard](#)  
**To:** [Zee, Stacey \(FAA\)](#)  
**Subject:** RE: Camden - issues from the project  
**Date:** Wednesday, June 08, 2016 10:42:08 AM

---

Great I think he needs to see.

Sent from my Verizon, Samsung Galaxy smartphone

----- Original message -----

**From:** Stacey.Zee@faa.gov  
**Date:** 6/8/16 10:41 AM (GMT-05:00)  
**To:** Steve Howard <[showard@co.camden.ga.us](mailto:showard@co.camden.ga.us)>  
**Subject:** RE: Camden - issues from the project

I can send an email to lou and copy you.

---

**From:** Steve Howard [<mailto:showard@co.camden.ga.us>]  
**Sent:** Wednesday, June 08, 2016 10:20 AM  
**To:** Zee, Stacey (FAA)  
**Subject:** RE: Camden - issues from the project

I think we should share with Lou.

Sent from my Verizon, Samsung Galaxy smartphone

----- Original message -----

**From:** [Stacey.Zee@faa.gov](mailto:Stacey.Zee@faa.gov)  
**Date:** 6/8/16 10:09 AM (GMT-05:00)  
**To:** Steve Howard <[showard@co.camden.ga.us](mailto:showard@co.camden.ga.us)>  
**Subject:** Camden - issues from the project

**Just some things we pulled together:**

**Overarching Issues**

- **Project Management** – critical components of project management are missing. For example, the contractor has failed to:
  - develop and maintain a comprehensive list of project action items
  - develop, update, and adhere to a realistic project schedule
- **Responsiveness** – requests made by the FAA have not been addressed by the contractor, or have been met with substantial push back. On several occasions, the FAA has requested that the contractor provide/develop materials or resources and the contractor has not complied

with these requests.

- **Sequencing** – the order of development of major project milestones have not followed a typical progression for NEPA documents. For example, the following items have been completed out of order:
  - conducting scoping prior to developing initial DOPAA,
  - developing the proposed action and proposing alternatives prior to developing the purpose and need statement, and
  - proposing to conduct field work prior to establishing and coordinating the range of reasonable alternatives to be carried forward in the EIS.
- **Quality of Work** – deliverables that have been submitted have required substantial revisions by the FAA team prior to finalization.
- **Timeliness** – as detailed below, most project deadlines have been missed.

### **Specific Schedule Issues**

Overall, the schedule has slipped significantly over the course of the project. The below bullets provide a high level overview of the extent of the delays, which appear to indicate that the project has fallen approximately 5 months behind schedule.

#### ***Data Call***

- According to the original project schedule dated 10/9/2015, the data call was to be completed by October 14, 2015.
  - The latest additional data request was submitted in May 2016.

#### ***DOPAA***

- According to the original project schedule dated 10/9/2015, the draft DOPAA was to be completed on November 11, 2015 and the final DOPAA was to be completed on February 26, 2016.
  - The incomplete draft DOPAA was submitted for review in March 2016.
  - Chapters 1 and 2 have yet to be submitted and are currently scheduled for submittal on June 30, 2016.
  - A draft purpose and need statement was just submitted for review on June 7, 2016.

#### ***Consultation***

- According to the original project schedule dated 10/9/2015, the draft biological assessment, cultural survey report, wetlands delineation report, and noise impact assessment were to be submitted on January 1, 2016.
  - Site access agreements are still being finalized.
  - Field work has yet to be conducted.
  - The current schedule indicates the following deliverables and due dates:
    - Draft biological assessment: July 26, 2016
    - Draft cultural survey report: July 21, 2016
    - Draft wetlands delineation: May 13, 2016 (past due)
    - Draft noise impact assessment: June 1, 2016 (past due)

#### ***Preliminary Draft EIS***

- According to the original project schedule dated 10/9/2015, the Preliminary Draft EIS was to be submitted for review on March 29, 2016.

The current schedule indicates that the Preliminary Draft EIS is to be submitted on September 14, 2016.

***Public Draft EIS***

- According to the original project schedule dated 10/9/2015, the Draft EIS was due to be published for public review on September 1, 2016.
  - The current schedule indicates that the Draft EIS should be published for public review on February 10, 2017.

***Final EIS***

- According to the original project schedule dated 10/9/2015, the Final EIS was due to be published on May 16, 2017.
  - The current schedule indicates that the Final EIS should be published on December 1, 2017.

***Record of Decision***

- According to the original project schedule dated 10/9/2015, the Record of Decision was due to be published on June 16, 2017.
  - The current schedule indicates that the Final EIS should be published on January 4, 2018.

Stacey M. Zee  
Environmental Specialist  
Federal Aviation Administration  
800 Independence Ave, SW  
Washington, DC 20591  
202-267-9305

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**From:** [Karen.Perez@faa.gov](mailto:Karen.Perez@faa.gov)  
**To:** [katherine.branham@faa.gov](mailto:katherine.branham@faa.gov); [Randal.Maday@faa.gov](mailto:Randal.Maday@faa.gov); [michelle.murray@faa.gov](mailto:michelle.murray@faa.gov); [Pam.Underwood@faa.gov](mailto:Pam.Underwood@faa.gov); [Stacey.Zee@faa.gov](mailto:Stacey.Zee@faa.gov); [Ken.Wong@faa.gov](mailto:Ken.Wong@faa.gov)  
**Subject:** RE: Camden Application for your Review  
**Date:** Wednesday, January 30, 2019 8:47:13 AM  
**Attachments:** Camden Spaceport TRB.docx

---

Hi Katie,

I was looping in Ken for status of the AST-1 letter and for internal discussion on Camden bypassing pre-app review before submitting their application. I also attached the ROD for the Camden TRB as a refresher.

Karen

---

**From:** Branham, Katherine (FAA) <[katherine.branham@faa.gov](mailto:katherine.branham@faa.gov)>  
**Sent:** Tuesday, January 29, 2019 2:09 PM  
**To:** Maday, Randal (FAA) <[Randal.Maday@faa.gov](mailto:Randal.Maday@faa.gov)>; Bailey, Jennifer (FAA) <[Jennifer.Bailey@faa.gov](mailto:Jennifer.Bailey@faa.gov)>; Braun, Thomas (FAA) <[Thomas.Braun@faa.gov](mailto:Thomas.Braun@faa.gov)>; Czelusniak, Daniel (FAA) <[Daniel.Czelusniak@faa.gov](mailto:Daniel.Czelusniak@faa.gov)>; Illoldi, Schedir (FAA) <[Schedir.Illoldi@faa.gov](mailto:Schedir.Illoldi@faa.gov)>; Murray, Michelle (FAA) <[michelle.murray@faa.gov](mailto:michelle.murray@faa.gov)>; Orovets, Christine (FAA) <[Christine.Orovets@faa.gov](mailto:Christine.Orovets@faa.gov)>; Parks, Annette (FAA) <[annette.parks@faa.gov](mailto:annette.parks@faa.gov)>; Perez, Karen (FAA) <[Karen.Perez@faa.gov](mailto:Karen.Perez@faa.gov)>; Sisneros, Emily (FAA) <[emily.sisneros@faa.gov](mailto:emily.sisneros@faa.gov)>; Smiley, Gunther (FAA) <[Gunther.Smiley@faa.gov](mailto:Gunther.Smiley@faa.gov)>; Tran, Yvonne (FAA) <[yvonne.tran@faa.gov](mailto:yvonne.tran@faa.gov)>; Underwood, Pam (FAA) <[Pam.Underwood@faa.gov](mailto:Pam.Underwood@faa.gov)>; Zee, Stacey (FAA) <[Stacey.Zee@faa.gov](mailto:Stacey.Zee@faa.gov)>  
**Subject:** RE: Camden Application for your Review

Randy,

Additionally, a couple of days before the break, Kelvin and AST-management decided that we were going to require some additional information be included in their application before it can be submitted. Kelvin was going to sign the letter and send it to Camden directly; however, since the AST-1 changeover we need to check in on the status of the letter. I am tracking it down now with Pam.

Katie Branham  
Aerospace Engineer  
Operations Integration Division (AST-500)  
FAA, Office of Commercial Space Transportation  
(321) 634-2795

---

**From:** Branham, Katherine (FAA)  
**Sent:** Tuesday, January 29, 2019 2:00 PM  
**To:** Maday, Randal (FAA) <[Randal.Maday@faa.gov](mailto:Randal.Maday@faa.gov)>; Bailey, Jennifer (FAA)

<[Jennifer.Bailey@faa.gov](mailto:Jennifer.Bailey@faa.gov)>; Braun, Thomas (FAA) <[Thomas.Braun@faa.gov](mailto:Thomas.Braun@faa.gov)>; Czelusniak, Daniel (FAA) <[Daniel.Czelusniak@faa.gov](mailto:Daniel.Czelusniak@faa.gov)>; Illoldi, Schedir (FAA) <[Schedir.Illoldi@faa.gov](mailto:Schedir.Illoldi@faa.gov)>; Murray, Michelle (FAA) <[michelle.murray@faa.gov](mailto:michelle.murray@faa.gov)>; Orovets, Christine (FAA) <[Christine.Orovets@faa.gov](mailto:Christine.Orovets@faa.gov)>; Parks, Annette (FAA) <[annette.parks@faa.gov](mailto:annette.parks@faa.gov)>; Perez, Karen (FAA) <[Karen.Perez@faa.gov](mailto:Karen.Perez@faa.gov)>; Sisneros, Emily (FAA) <[emily.sisneros@faa.gov](mailto:emily.sisneros@faa.gov)>; Smiley, Gunther (FAA) <[Gunther.Smiley@faa.gov](mailto:Gunther.Smiley@faa.gov)>; Tran, Yvonne (FAA) <[yvonne.tran@faa.gov](mailto:yvonne.tran@faa.gov)>; Underwood, Pam (FAA) <[Pam.Underwood@faa.gov](mailto:Pam.Underwood@faa.gov)>; Zee, Stacey (FAA) <[Stacey.Zee@faa.gov](mailto:Stacey.Zee@faa.gov)>

**Subject:** RE: Camden Application for your Review

Randy,

Andrew Nelson is attempting to bypass the Pre-App review of his application. The pre-app team has not seen this version of the application nor the corrections that were made. Numerous inconsistencies were identified in the last draft.

In addition, do you have an update on the FOIA Lawsuit on Camden, and if it prevents us from working this project until it is resolved?

Katie Branham  
Aerospace Engineer  
Operations Integration Division (AST-500)  
FAA, Office of Commercial Space Transportation  
(321) 634-2795

---

**From:** Maday, Randal (FAA) <[Randal.Maday@faa.gov](mailto:Randal.Maday@faa.gov)>

**Sent:** Tuesday, January 29, 2019 1:41 PM

**To:** Branham, Katherine (FAA) <[katherine.branham@faa.gov](mailto:katherine.branham@faa.gov)>; Bailey, Jennifer (FAA) <[Jennifer.Bailey@faa.gov](mailto:Jennifer.Bailey@faa.gov)>; Braun, Thomas (FAA) <[Thomas.Braun@faa.gov](mailto:Thomas.Braun@faa.gov)>; Czelusniak, Daniel (FAA) <[Daniel.Czelusniak@faa.gov](mailto:Daniel.Czelusniak@faa.gov)>; Illoldi, Schedir (FAA) <[Schedir.Illoldi@faa.gov](mailto:Schedir.Illoldi@faa.gov)>; Murray, Michelle (FAA) <[michelle.murray@faa.gov](mailto:michelle.murray@faa.gov)>; Orovets, Christine (FAA) <[Christine.Orovets@faa.gov](mailto:Christine.Orovets@faa.gov)>; Parks, Annette (FAA) <[annette.parks@faa.gov](mailto:annette.parks@faa.gov)>; Perez, Karen (FAA) <[Karen.Perez@faa.gov](mailto:Karen.Perez@faa.gov)>; Sisneros, Emily (FAA) <[emily.sisneros@faa.gov](mailto:emily.sisneros@faa.gov)>; Smiley, Gunther (FAA) <[Gunther.Smiley@faa.gov](mailto:Gunther.Smiley@faa.gov)>; Tran, Yvonne (FAA) <[yvonne.tran@faa.gov](mailto:yvonne.tran@faa.gov)>; Underwood, Pam (FAA) <[Pam.Underwood@faa.gov](mailto:Pam.Underwood@faa.gov)>; Zee, Stacey (FAA) <[Stacey.Zee@faa.gov](mailto:Stacey.Zee@faa.gov)>

**Subject:** RE: Camden Application for your Review

Camden had submitted a revised application for our review. We need to be prepared to make a "complete enough determination" in 2 weeks. It can be found at Q:\Camden Spaceport\1\_29\_19 Submittal.

---

**From:** Branham, Katherine (FAA) <[katherine.branham@faa.gov](mailto:katherine.branham@faa.gov)>

**Sent:** Monday, February 05, 2018 5:39 PM

**To:** Bailey, Jennifer (FAA) <[Jennifer.Bailey@faa.gov](mailto:Jennifer.Bailey@faa.gov)>; Braun, Thomas (FAA)

<[Thomas.Braun@faa.gov](mailto:Thomas.Braun@faa.gov)>; Czelusniak, Daniel (FAA) <[Daniel.Czelusniak@faa.gov](mailto:Daniel.Czelusniak@faa.gov)>; Illoldi, Schedir (FAA) <[Schedir.Illoldi@faa.gov](mailto:Schedir.Illoldi@faa.gov)>; Maday, Randal (FAA) <[Randal.Maday@faa.gov](mailto:Randal.Maday@faa.gov)>; Murray, Michelle (FAA) <[michelle.murray@faa.gov](mailto:michelle.murray@faa.gov)>; Orovets, Christine (FAA) <[Christine.Orovets@faa.gov](mailto:Christine.Orovets@faa.gov)>; Parks, Annette (FAA) <[annette.parks@faa.gov](mailto:annette.parks@faa.gov)>; Perez, Karen (FAA) <[Karen.Perez@faa.gov](mailto:Karen.Perez@faa.gov)>; Sisneros, Emily (FAA) <[emily.sisneros@faa.gov](mailto:emily.sisneros@faa.gov)>; Smiley, Gunther (FAA) <[Gunther.Smiley@faa.gov](mailto:Gunther.Smiley@faa.gov)>; Tran, Yvonne (FAA) <[yvonne.tran@faa.gov](mailto:yvonne.tran@faa.gov)>; Underwood, Pam (FAA) <[Pam.Underwood@faa.gov](mailto:Pam.Underwood@faa.gov)>; Zee, Stacey (FAA) <[Stacey.Zee@faa.gov](mailto:Stacey.Zee@faa.gov)>

**Subject:** Camden Application for your Review

Hello Team!

Camden has the goal of a 28 FEB official application submission to AST. As you review their materials in the Q: please put your comments in the PDF version of each document so we can track changes internally.

Also, please remember to use language ready to send to the applicant. I will consolidate all comments in a memo and distribute to the team for final approval.

[Q:\Camden Spaceport\Updates\Complete Application Presubmission](#)

Thank you!!

Katie Branham  
Aerospace Engineer  
Operations Integration Division (AST-500)  
FAA, Office of Commercial Space Transportation  
(321) 634-2795

**From:** [Underwood, Pam \(FAA\)](#)  
**To:** [Price, Hank \(FAA\)](#)  
**Cc:** [Zee, Stacey \(FAA\)](#); [Murray, Daniel \(FAA\)](#); [Searight, Howard \(FAA\)](#); [Branham, Katherine \(FAA\)](#); [Berlin, Ben \(FAA\)](#); [Coffman, Michael \(FAA\)](#); [Bergen, Kathleen \(FAA\)](#)  
**Subject:** Re: Spaceport Camden  
**Date:** Monday, April 02, 2018 2:23:46 PM

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Thanks, Stacey & Hank.

Hank - I do not think AST should provide any other info describing authorized personnel than Stacey has given below.

Bottom line. Authorized personnel is NOT an FAA term or definition. It is something the proponent, Camden County, put in the dEIS to describe people who may be able to remain in certain areas of Cumberland and Little Cumberland Island.

Public safety will be evaluated by the FAA in the application evaluation for the proposed Camden Spaceport once the proponent, Camden County, formally submits their application.

Hope this is helpful.

BTW...I met with the southern regional administrator today. He would like the regional AOC folks to be copied/included on public affairs info related to the upcoming public meetings.

Specifically, Kathleen Bergen, from the southern region AOC office. Kathleen is copied on this email.

Thank you!!

Pam

Sent from my iPhone

On Apr 2, 2018, at 1:43 PM, Price, Hank (FAA) <[hank.price@faa.gov](mailto:hank.price@faa.gov)> wrote:

Stacey:

Let me know when AST signs off on this description of "Authorized Persons" in Camden DEIS?

Thanks,

Hank

---

**From:** Zee, Stacey (FAA)  
**Sent:** Monday, April 02, 2018 1:01 PM  
**To:** Price, Hank (FAA) <[hank.price@faa.gov](mailto:hank.price@faa.gov)>

**Cc:** Murray, Daniel (FAA) <[Daniel.Murray@faa.gov](mailto:Daniel.Murray@faa.gov)>; Searight, Howard (FAA) <[Howard.Searight@faa.gov](mailto:Howard.Searight@faa.gov)>; Underwood, Pam (FAA) <[Pam.Underwood@faa.gov](mailto:Pam.Underwood@faa.gov)>; Branham, Katherine (FAA) <[katherine.branham@faa.gov](mailto:katherine.branham@faa.gov)>; Berlin, Ben (FAA) <[ben.berlin@faa.gov](mailto:ben.berlin@faa.gov)>; Coffman, Michael (FAA) <[Michael.Coffman@faa.gov](mailto:Michael.Coffman@faa.gov)>  
**Subject:** FW: Spaceport Camden

Hank – here is information we put together on “authorized persons”. I’ve copied other AST folks so they can weigh in.

The term “authorized persons,” as used in the DEIS, is a term that Camden has used to describe individuals who could remain in certain areas on Cumberland Island and Little Cumberland Island during operations at the proposed launch site. It is not a term used anywhere in FAA regulations. In accordance with 14 CFR 417.107, a launch operator may initiate flight only if the risk to any individual member of the public does not exceed a casualty expectation of one in one million per launch for each hazard. Therefore, a launch operator could not conduct a licensed launch from Camden if the risk to any member of the public, including those who remain on Cumberland Island and Little Cumberland Island, did not meet this requirement. A launch operator who intends to conduct launches from Camden may need to identify closure areas to meet this requirement.

**From:** Landers, Mary [<mailto:mlanders@savannahnow.com>]  
**Sent:** Monday, April 02, 2018 12:55 PM  
**To:** Price, Hank (FAA) <[hank.price@faa.gov](mailto:hank.price@faa.gov)>  
**Cc:** Zee, Stacey (FAA) <[Stacey.Zee@faa.gov](mailto:Stacey.Zee@faa.gov)>  
**Subject:** Re: Spaceport Camden

Hank,

I'm still interested in learning how FAA defines "authorized persons." The phrase appears multiple times in the draft EIS for Spaceport Camden that the FAA issued last month.

Please let me know where you stand on tracking down a response. It's been a week since I heard from you.

Thanks,  
Mary Landers  
Savannah Morning News  
(o) 912 652-0337  
(m) (b) (6)

On Tue, Mar 27, 2018 at 5:06 PM, <[hank.price@faa.gov](mailto:hank.price@faa.gov)> wrote:

I am tracking down your request on what we can say.

**From:** Landers, Mary [<mailto:mlanders@savannahnow.com>]

**Sent:** Tuesday, March 27, 2018 4:42 PM  
**To:** Price, Hank (FAA) <[hank.price@faa.gov](mailto:hank.price@faa.gov)>  
**Subject:** Fwd: Spaceport Camden

Hank,

I'm not sure you've seen this request I first made last Thursday. Can you let me know, please? I want to know how the FAA defines "authorized persons" in the launch hazard zone.

Thanks,  
Mary Landers  
Savannah Morning News  
(o) [912 652-0337](tel:9126520337)  
(m) (b) (6)

----- Forwarded message -----  
From: **Landers, Mary** <[mlanders@savannahnow.com](mailto:mlanders@savannahnow.com)>  
Date: Mon, Mar 26, 2018 at 11:10 AM  
Subject: Fwd: Spaceport Camden  
To: [hank.price@faa.gov](mailto:hank.price@faa.gov), [stacey.zee@faa.gov](mailto:stacey.zee@faa.gov)

Dear Hank and Stacey,

Please forgive me if I missed your response, but I haven't seen anything to indicate you received this request. Please advise.

Thanks,  
Mary Landers  
Savannah Morning News  
(o) [912 652-0337](tel:9126520337)  
(m) (b) (6)

----- Forwarded message -----  
From: **Landers, Mary** <[mlanders@savannahnow.com](mailto:mlanders@savannahnow.com)>  
Date: Thu, Mar 22, 2018 at 2:40 PM  
Subject: Spaceport Camden  
To: [hank.price@faa.gov](mailto:hank.price@faa.gov), [stacey.zee@faa.gov](mailto:stacey.zee@faa.gov)

Dear Hank and Stacey,

The Spaceport Camden draft EIS refers to "authorized persons." Can you please provide me with the FAA definition of "authorized persons" and a couple examples of its use in other FAA documents?

Thanks,  
Mary Landers  
Savannah Morning News  
(o) [912 652-0337](tel:9126520337)

(m) (b) (6)

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