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By Email to: [swg\\_public\\_notice@usace.army.mil](mailto:swg_public_notice@usace.army.mil)

Re: SpaceX, Permit Application SWG-2012-00381

Policy Analysis Branch  
Regulatory Division, CESWG-RDP U.S. Army Corps of Engineers  
P.O. Box 1229  
Galveston, Texas 77553-1229

Dear Sir or Madam:

In response to the Public Notice on Permit Application SWG-2012-00381 (“Public Notice”) extending the comment period, I submit these supplemental comments on the proposal of Space Exploration Technologies, Inc. (“SpaceX”) to modify the existing permit at the “vertical launch area” (“VLA”) near State Highway 4, Boca Chica, Texas with “the expansion and addition of test, orbital, and landing pads, integration towers, associated infrastructure, stormwater management features and vehicle parking” (Public Notice: 1).

I. The Corps should conduct a new practicable alternatives analysis

In my first comment letter, I voiced concerns regarding the inadequate practicable alternatives analysis in the FAA’s 2014 EIS. Since I submitted that comment, Blue Origin, a major SpaceX competitor, successfully launched the “New Shepard” rocket booster and capsule; the mission “reached 348,753 feet altitude... about 106 kilometers, above the internationally recognized boundary of space” and then landed – without exploding. (Sheets 2021). Of particular relevance to the Corps practicable alternatives analysis for the SpaceX dredge and fill permit application, “the mission launched from Blue Origin’s private facility in West Texas...” (Sheets 2021). The Blue Origin website shows multiple pictures of rocket launch activities in open arid habitats (Blue Origin 2021). Most importantly, unlike SpaceX, the Blue Origin facility is not located near Boca Chica, surrounded by the Boca Chica State Park, Brazos Island State Park (collectively, “Parks”) the Lower Rio Grande Valley National Wildlife Refuge (“Refuge”), the South Bay Coastal Preserve, and the Las Palomas Wildlife Management Area (Boca Chica Unit).

The recent successful activities of Blue Origin launching a rocket into space demonstrate that there are practicable alternatives for rocket launch activities that do not involve fill of valuable wetlands near the Refuge and Parks. In addition, the Blue Origin pictures show that if there were an explosion with a Blue Origin launch similar to what occurred multiple times at Boca Chica

with SpaceX, the Blue Origin rocket debris would not be falling in valuable habitats used by the threatened Piping Plover and other shorebirds and waterbirds. Also, there would not be significant adverse impacts associated with removing rocket debris from high value mud and algal mat flats at Boca Chica. Contrary to claims of the 2014 FAA EIS, the successes of Blue Origin demonstrate that there are practicable alternatives that do not require SpaceX to fill valuable wetlands and mudflats at Boca Chica. The Corps must conduct a new, independent practicable alternatives analysis. Once it does, the Corps should conclude that due to the existence of practicable alternatives, the Corps must deny the dredge and fill permit.

II. SpaceX's proposed activities would significantly degrade aquatic resources and are not in the public interest.

In my first comment letter I noted that massive uncontrolled explosions have taken place during the last four rocket launches. The explosion of SN 11 on March 30, 2021, which occurred at altitude and not on the launch pad, caused large amounts of debris to fall uncontrollably outside of SpaceX property on to public conservation lands, including high value, ecologically sensitive habitats that are used by the Piping Plover, Wilson's Plover, and Snowy Plover. This is particularly relevant to the Clean Water Act permit process as the FAA's 2014 EIS inaccurately states that "Operation of the vertical launch area and control center would not result in impacts to tidal sand flats or mud flats" (FAA 2014: 4-11). My first comment letter noted the significant adverse impacts to mudflats and algal flats from rocket debris and associated removal activities. As the FAA 2014 EIS is based on inaccurate information, the Corps must independently review the adverse impacts to wetlands, mudflats, and algal mat flats and not rely on the FAA analysis.

I am providing photographs (pp. 6-35) taken after the most recent SpaceX explosion that document adverse impacts associated with the cleanup activities for the rocket debris. These pictures document several critical points that are relevant to the permit review process.

First, some of the debris pieces are smaller and can be retrieved on foot. However, on at least one day, there was a large crowd of SpaceX employees or contractors walking around the flats picking up the smaller debris pieces. These flats where people are walking are in, and next to, habitats that can be used by Snowy Plovers and Wilson's Plovers for nesting. What steps is SpaceX taking to prevent take of nests or chicks from debris cleanup? Even trained, experienced field staff know how very difficult it can be to locate the nests or chicks of small plovers. Trained field staff also are aware of how a step in the wrong place can result in eggs being crushed or that staying too long in an area can result a nest being abandoned or eggs becoming non-viable from exposure to excessive heat. I remain very concerned that if Wilson's Plovers or Snowy Plovers are nesting in the areas to the north and south of the SpaceX VLA – like they have done historically – when there is another explosion, take of nests or chicks is foreseeable. How is SpaceX going to prevent this take? I would stress that even if there is one person out there with field experience, that is not adequate to monitor many people who are walking around focused on cleaning up debris.

Second, there are numerous signs of damage from off-road vehicles being operated on these flats. As the National Park Service noted discussing adverse impacts from illegal ORV use on the Laguna Madre side of Padre Island which shares wind tidal flats similar to those in South Bay:

“Padre Island National Seashore is proposing to restore areas within the park's wind-tidal flats that have been damaged by off-road vehicles. The project would restore the surface hydrology of the tidal flats and allow for recovery of algal mats.

Wind-tidal flats are a very limited and specialized environment existing within a few centimeters of sea-level. As a result, wind-driven seawater moving across the flats is vulnerable to disruption from any change in topography. Vehicles driven on the tidal flats leave deep ruts and ridges in the soft sediment, which alter the natural surface flow of seawater. This damage may last decades, as there is very little wave energy necessary to resuspend and move the sediments.

Benthic invertebrates, such as polychaetes, crustaceans, and insect larvae, are vulnerable to the change in water level, and are often starved of seawaters. Blue-green algal mats, also dependent on the ebbing and flowing of Laguna Madre waters across the flats, provide some of the most productive shorebird feeding grounds. As a result of impacts to the algal flats and invertebrates, shorebirds, such as Reddish egret, Long-billed curlew, American oystercatcher, and the federally-listed Piping plover and Red knot, have lost potential foraging habitat.

A fundamental policy of the National Park Service is to preserve park resources to the extent that the resources will be left unimpaired for future generations. *Tire tracks left behind by vehicles alter the physical, biological, and aesthetic components of these valuable wetlands, and may take years to decades to recover naturally.*”

(NPS accessed 2021)(emphasis added).

It must be stressed that the areas where some of the debris fell are closed to all entry by pedestrians or vehicles of the general public. USFWS signs clearly state “Area Closed Area behind sign closed to protect sensitive wildlife species” and “Sensitive Habitat No Motorized Vehicles Beyond This Point”. Only authorized entry is allowed.

For each of the recent SpaceX explosions at Boca Chica, have SpaceX employees or contractors used vehicles off-road in closed areas without explicit authorization from USFWS every time entry has occurred into the closed areas? That is a simple factual question with a “yes” or “no” answer. Because ORV use in these areas raises significant risk of environmental damage to protected flats habitats, the Corps has a duty to evaluate what actions SpaceX employees or contractors have taken after each explosion to clean up debris, and whether such ORV use will take place in the future.

Second, a photo shows a UTV operating on the flats. I heard that SpaceX had not yet received authorization from USFWS to operate vehicles off-road on the date the picture was taken, though

I have not yet been able to verify that information. While the photo was taken at a distance, it also appears that the UTV is not operating in a dry area.

I understand that later, after this picture was taken, USFWS granted limited authorization for restricted off-road use in “dry” areas. I have not yet seen if there is language memorializing this understanding,<sup>1</sup> so I do not know the precise conditions of the authorization, if it exists, or for how long it exists, or if SpaceX is complying with the authorization. Moreover, such purported authorization from USFWS does not prevent ecological damage to algal flats resulting from such ORV use, nor does not prevent the Corps from having to address such damage as part of the environmental review process. And, even if such authorization is granted for flats if they are “dry,” what does that actually mean in the context of debris removal on wind tidal flats? It appears in several photographs from the tracks sinking into the substrate that off-road vehicles continued to operate in tidal flats – including algal mat flats - that were not “dry.” I continue to strongly question whether it will be possible to conduct cleanup activities without causing significant adverse environmental impacts.

Third, the large debris field raise two related issues that are relevant in another way to the permit review process: is the foreseeable deposition of large amounts of heavy debris from a rocket explosion into valuable publicly owned wetlands and mudflats considered an unpermitted fill activity? Also, if there are efforts to remove the debris that involve digging with shovels or mechanized equipment, would such activities result in the removal of protected wetlands or mudflats that then results in the subsequent discharge of fill materials that are regulated under the Clean Water Act? The pictures show that pieces of the falling debris are penetrating into the ground; that debris is being dug out; and in certain instances, mud or sand are being shoveled onto the flats as part of the debris removal process.

Finally, what is going to happen about the very large pieces of rocket debris that cannot be carried out or cannot be dragged out? What impacts are associated with removing those very large debris pieces?

I am not, in raising this question, saying that dragging out debris will not result in adverse impacts to the tidal flats. In certain instances, there do appear to be large gouge marks associated with dragging out rocket debris pieces and the impacts to sheet flow and algal mats need also need to be considered for this approach.

### III. Conclusion

In my first comment letter, I urged the Corps to deny SpaceX’s application for a dredge and fill permit. The additional information submitted with this comment letter further supports that request for a permit denial.

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<sup>1</sup> Such authorization, if it exists, would require appropriate NEPA and ESA review before such authorization is given, as well as a consistency review under the federal statute governing the Refuge if the ORV use were taking place on the Refuge. If USFWS did grant authorization, did USFWS follow the required environmental review procedures?

Sincerely,

Sidney B. Maddock

Copy: Brian Winton, USFWS (by email)

### References

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Chapa, S. “SpaceX Plans to Drill for Natural Gas Near Texas Launchpad”, Bloomberg News, January 22, 2021, retrieved at <https://www.bloomberg.com/news/articles/2021-01-22/spacex-plans-to-drill-for-natural-gas-next-to-texas-launchpad> (accessed January 22, 2021).

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Sheets, M. April 14, 2021. “Jeff Bezos’ Blue Origin launches and lands rocket New Shepard, as it prepares to launch people”. CNBC, accessed at: <https://www.cnbc.com/2021/04/14/watch-jeff-bezos-blue-origin-launch-new-shepard-ns-15-livestream.html> accessed April 20, 2021.



























































