

UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

CENTER FOR BIOLOGICAL DIVERSITY,
AMERICAN BIRD CONSERVANCY,
SURFRIDER FOUNDATION, SAVE RGV, and
THE CARRIZO/COMECRUDO NATION OF
TEXAS, INC.,

Plaintiffs

v.

FEDERAL AVIATION ADMINISTRATION,
BILLY NOLEN, in his official capacity, U.S.
FISH AND WILDLIFE SERVICE, and
MARTHA WILLIAMS, in her official
capacity,

Defendants

and

SPACE EXPLORATION TECHNOLOGIES
CORP.,

Defendant-Intervenor.

Civil Case No. 23-1204

**[PROPOSED] SUPPLEMENTAL
COMPLAINT**

INTRODUCTION

1. The initial Complaint in this action, filed May 1, 2023, concerned the Federal Aviation Administration’s (FAA) failure to comply with the National Environmental Policy Act (NEPA) when it issued a Commercial Space Transportation License to SpaceX for the Starship-Super Heavy Launch Program. Plaintiffs claimed that Defendants violated NEPA by failing to prepare an Environmental Impact Statement, instead relying on inadequate and unproven mitigation to find that launching the largest rockets known to humankind—which are known to

explode and adversely affect surrounding lands that provide essential habitat for migratory birds, including federally protected species—would not have significant environmental impacts.

Plaintiffs’ original Complaint also claimed that Defendants failed to take the requisite “hard look” at the environmental impacts of the SpaceX launch program as NEPA requires, including from light, heat, and environmental pollution, as well as risk of wildfires, the impacts of closures on the community, and the launch program’s contribution to climate change, and that the FAA failed to consider a reasonable range of alternatives. Plaintiffs sought declaratory relief and vacatur of the FAA’s June 13, 2022, Final Programmatic Environmental Assessment (PEA) and Finding of no Significant Impact/Record of Decision (FONSI/ROD) for the SpaceX Starship/Super Heavy Launch Vehicle Program.

2. SpaceX undertook the first launch of the Starship/Super Heavy rocket on April 20, 2023. Just minutes into the launch, the rocket exploded. The launch pad was destroyed by the intense heat generated by the rocket, scattering debris—including dust, chunks of concrete, and metal—over a large area, including adjacent sensitive tidal flats that provide habitat for endangered species and outside the area that FAA had previously considered when assessing the potential impacts of the launch program. The destruction of the launch pad had not been discussed or considered in the 2022 PEA.

3. The area surrounding the SpaceX facility at Boca Chica is a biologically diverse and essential habitat area for many species, including wildlife protected under the Endangered Species Act (ESA). The SpaceX facility lies in the midst of publicly owned conservation, park, and recreation lands, including a National Wildlife Refuge. Therefore, the lands that have been, and will continue to be, adversely affected by SpaceX’s activities are of extraordinary

conservation value for a range of federally and state listed wildlife and other protected species such as migratory birds.

4. In response to the April 20 catastrophic launch failure, the FAA opened a “mishap investigation,” purportedly to determine the root causes of the explosion and the corrective actions that SpaceX would need to take to prevent it from reoccurring. The FAA, however, did not conduct its own investigation but instead relied on a “mishap report” conducted by SpaceX, which was submitted to the FAA on August 21, 2023.

5. On September 7, 2023, the FAA issued a letter stating—without any supporting analysis—that the agency “accept[ed] the root causes and corrective actions described in the mishap report,” and that it was closing the investigation. The FAA required SpaceX to implement the 63 corrective actions that the company had identified in its own mishap report; however, FAA does not appear to have conducted any analysis of whether additional corrective actions should have been required or whether alternatives exist to the corrective actions proposed by SpaceX.

6. On September 13, 2023—less than a week after the FAA closed the investigation—Elon Musk, the CEO of SpaceX, announced that SpaceX had already completed all of the corrective actions and was seeking a new/amended license for further launches of the Starship/Superheavy rocket.

7. As a result of the April 20 launch “mishap,” the FAA reinitiated formal ESA Section 7 consultation with the U.S. Fish and Wildlife Service (FWS). Section 7 of the ESA requires that federal agencies must consult with FWS to “insure” that their actions do not jeopardize the continued existence of federally-listed endangered or threatened species, or impair the critical habitats of such species. 16 U.S.C. § 1536(a)(2). Reinitiation of consultation was

required for the FAA's approval because the April 20 launch event resulted in the destruction of the launch pad and debris falling within habitat for listed species that was not previously contemplated, and the explosion required corrective actions, including the implementation of a deluge water system, that itself may affect listed species and designated critical habitat through contamination. Reinitiated consultation was also required to address the excessive noise and vibrations from the April 20 launch, and to address the impacts from efforts to recover the debris that was ejected into the sensitive tidal flat habitat.

8. Despite reinitiating formal ESA consultation to address the ramifications of the April 20 launch, the FAA did not supplement its prior analysis under NEPA. Rather, it announced that it would do a "written reevaluation," which is intended to determine whether a supplemental NEPA analysis is required.

9. On November 15, 2023, the FAA issued a new/amended license to SpaceX for the second launch of the Starship/Superheavy rocket, just 3 days before the second launch took place on November 18.

10. The FAA simultaneously issued the NEPA written reevaluation, in which it determined that no supplemental environmental assessment was required to satisfy the agency's NEPA obligations, even though the April 20 launch resulted in significant, unanticipated environmental harm and required dozens of corrective actions, including the implementation of a new deluge water system. The written reevaluation found that the impacts of the launch had been covered in the 2022 PEA, despite the lack of any discussion of the potential for the launch to result in destruction of the launch pad.

11. The written reevaluation failed to adequately address the environmental impacts of the April 20 explosion. For example, the reevaluation ignored harms from debris falling

outside the designated debris study area—including dust that blanketed nearby towns—and debris removal efforts to address the concrete that was ejected into the adjacent wildlife habitat, which poses significant risks to the sensitive tidal flats. Rather, the written reevaluation only addressed the potential for environmental harm from the new deluge water system—a steel plate over the concrete launch pad with holes through which water is pushed to counter the heat from the rockets—such as contamination of nearby habitats by metals, including nickel and chromium.

12. The FAA disregarded the potential for further explosions of the launch pad by simply stating that it was not expected to occur again due to the changes to the pad infrastructure and the use of deluge water. However, the FAA provided no analysis of the sufficiency of the reformulated launch pad and deluge water system, nor did it consider alternatives to the novel steel plate design that SpaceX implemented, which has never been used at any other launch facility. The written reevaluation acknowledges that up to 5,700 pounds of the steel plate may be ablated (i.e., scoured off) each year, but there is no discussion of how this will affect the efficacy of the steel plate deluge system, and FAA has not required any monitoring or testing of the deluge system. In fact, the FAA failed to even require that the deluge system be used for future launches, even though it now relies on it to support the determination that no further significant environmental impacts will occur from Starship/Superheavy launches.

13. The FAA's written reevaluation also failed to address concerns that were raised by FWS regarding the excessive noise and vibrations from the April 20 launch, including reports that noise levels were well in excess of what was previously contemplated, and that the equipment used to measure sound may not have been calibrated correctly.

14. The FAA has therefore, once again, failed to take the requisite “hard look” at the impacts of the Starship/Superheavy launch program through a supplemental NEPA analysis. The FAA provided no analysis of alternatives to the corrective actions posed by SpaceX and did not provide an opportunity for the public to review the pertinent information and provide comments, as NEPA requires.

15. In the reinitiated ESA consultation, FWS likewise failed to fully analyze the impacts of the April 20 launch and the potential for further harm to listed species from subsequent launches. On November 14, 2023, FWS issued an “addendum” to its 2022 Biological Opinion (BiOp) for the Starship/Superheavy Launch Program; however, as with the FAA’s written reevaluation, the BiOp addendum only focusses on the potential impacts of the deluge water system on the surrounding habitat, including from contamination by metals ablated from the steel plate. The BiOp addendum does not analyze the April 20 explosion of the launch pad and the impacts on surrounding habitat for listed species and does not provide any information on the impacts from ongoing debris recovery efforts, even though the explosion of the launch pad was not previously considered in the 2022 BiOp. The BiOp addendum also fails to address harm from excessive noise and vibration from the April 20 launch, nor does it provide any analysis as to the efficacy of the novel deluge waster system and whether it will be sufficient to prevent further explosions of the launch pad, particularly as the steel plate is ablated.

16. Therefore, the FAA’s and FWS’s failure to fully consider and address the impacts of the April 20 launch of the Starship/Super Heavy rocket is a blatant violation of NEPA, the ESA, and Administrative Procedure Act (APA). The Court should vacate the PEA, FONSI/ROD, and BiOp addendum, and remand with instructions that the agencies comply with the clear requirements of the law.

JURISDICTION AND VENUE

17. This case arises under the National Environmental Policy Act (NEPA), 42 U.S.C. §§ 4321 et seq., and the Administrative Procedure Act (APA), 5 U.S.C. §§ 701-706. This Court has jurisdiction over this action pursuant to 28 U.S.C. § 1331 (federal question) and 28 U.S.C. § 1346 (action against the United States). The Court may grant the relief requested under the APA, 5 U.S.C. §§ 701–706, and 28 U.S.C. § 2201-02 (declaratory and injunctive relief).

18. By written notice sent by electronic mail and certified mail on July 12, 2023, Plaintiffs informed FAA and FWS that they were required to reinitiate and complete ESA Section 7 consultation on the SpaceX Starship/Super Heavy Launch Vehicle Program to address the unanticipated explosion of the launch pad, the excessive noise from the launch, the inexplicable closure of the Boca Chica area for more than 48 hours, and the impacts of new infrastructure or other changes to the launch facility in response to the event. As Plaintiffs noted, the April 20 launch demonstrated that the potential harm from the Starship/Superheavy Launch Program far exceeds what FAA and FWS considered when previously reviewing the launch program. FAA and FWS reinitiated consultation; however, they failed to adequately address the impacts to listed species and critical habitat from the April 20 launch, and therefore an actual, justiciable controversy exists within the meaning of 28 U.S.C. § 2201(a).

19. Venue remains appropriate in this Court under 28 U.S.C. § 1391(e)(1) because FAA and FWS reside in this judicial district.

PARTIES

Plaintiffs

20. As explained in Plaintiffs' initial complaint, in bringing this lawsuit Plaintiffs stand in the shoes of their members who live, work, and recreate in places threatened by

SpaceX's activities at Boca Chica and who use, study, and cherish the land, water, wildlife—including federal-protected species—and other resources that will be irrevocably damaged by the activities permitted by the FAA. Plaintiffs hereby reallege, as if fully set forth herein, each and every allegation contained in the Plaintiffs' initial complaint regarding their interests and the impacts to those interests from Defendants' failure to comply with the law.

Defendants

21. Plaintiffs hereby reallege, as if fully set forth herein, each and every allegation contained in the Plaintiffs' initial complaint regarding the Defendants. Plaintiffs add the following:

22. The U.S. Fish and Wildlife Service is the federal agency that has the responsibility for ensuring that the requirements of the ESA are followed and enforced. This includes ensuring that FAA's activities, including its permitting of the SpaceX Starship/Superheavy Launch Program, will not jeopardize the continued existence of listed species or adversely modify critical habitat.

23. Defendant Martha Williams is the Director of the U.S. Fish and Wildlife Service, and is headquartered in Washington, D.C. Plaintiffs bring this action against Mrs. Williams in her official capacity only.

LEGAL BACKGROUND

The National Environmental Policy Act

24. NEPA is "our basic national charter for protection of the environment." 40 C.F.R. § 1500.1(a). NEPA's goals are to (1) "prevent or eliminate damage to the environment and biosphere," (2) "stimulate the health and welfare" of all people, and (3) "encourage productive and enjoyable harmony between [hu]man[kind] and [the] environment." 42 U.S.C. § 4321.

25. NEPA requires that: (1) agencies take a “hard look” at the environmental impacts of their actions before they occur, thereby ensuring “that the agency, in reaching its decision, will have available, and will carefully consider, detailed information concerning significant environmental impacts,” and (2) “the relevant information will be made available to the larger audience that may also play a role in both the decisionmaking process and the implementation of that decision.” *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989).

26. NEPA seeks to ensure “that environmental information is available to public officials and citizens before decisions are made and before actions are taken” and to “help public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore, and enhance the environment.” 40 C.F.R. § 1500.1(b), (c). When the federal government acts before fulfilling its NEPA obligations, courts may set the action aside until the government complies with NEPA.

27. The purpose of the NEPA process is also to inform federal agency decision-makers and the public of the “reasonable alternatives” that would “avoid or minimize adverse impacts or enhance the quality of the human environment.” *Id.* § 1502.1. This analysis of alternatives is the “heart” of NEPA, where the agency should “present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options.” *Id.* § 1502.14. The agency must “[r]igorously explore and objectively evaluate all reasonable alternatives.” *Id.* § 1502.14(a), (d).

28. NEPA requires all federal agencies to prepare a “detailed statement” for any “major Federal actions significantly affecting the quality of the human environment.” 42 U.S.C. § 4332(2)(C). This statement—the EIS—must describe the environmental impacts of the proposed action. *Id.* § 4332(2)(C)(i), (ii). The EIS is an “action-forcing device” that ensures

NEPA's goals "are infused into the ongoing programs and actions" of the federal government. 40 C.F.R. § 1502.1.

29. In determining whether to prepare an EIS, the agency must "consider every significant aspect of the environmental impact of a proposed action." *Baltimore Gas & Elec. Co. v. Nat. Res. Def. Council, Inc.*, 462 U.S. 87, 97 (1983). A determination that significant effects on the environment will in fact occur is not essential: an EIS must be prepared if substantial questions are raised whether a project *may* have a significant effect upon the environment. *See* 42 U.S.C. § 4332(2)(C) (requiring an evaluation of "*any* adverse environmental effects which cannot be avoided should the proposal be implemented," which must examine the environmental impact of the proposed action "*to the fullest extent possible*") (emphasis added); 42 U.S.C. § 4332(2)(F) (requiring agencies to consider the "worldwide and long-range character of environmental problems").

30. Pursuant to the FAA's NEPA procedures, a supplemental EA or EIS must be prepared when: (1) there are substantial changes to the proposed action that are relevant to environmental concerns, or (2) there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts. FAA Order 1050.1F, 9-3.

31. The Supreme Court has explained that NEPA's duty to supplement applies when "remaining governmental action would be environmentally 'significant,'" the agency retains an "opportunity to weigh the benefits of the project versus the detrimental effects on the environment," and "new information is sufficient to show that the remaining action will 'affect the quality of the human environment' . . . to a significant extent not already considered." *See Marsh v. Oregon Natural Resources Council*, 490 U.S. 360, 363-70 (1989) (citations omitted).

32. The FAA’s NEPA procedures provide that the agency may conduct a written reevaluation to determine whether a supplemental EA or EIS is required. FAA Order 1050.1F.9-3; *see also* 40 C.F.R. 1502.9(d)(4). However, it is clear in both CEQ’s regulations and related guidance that such a document does not substitute for NEPA analysis but rather only serves to document the agency’s opinion as to why such analysis is not needed. *See* Council on Environmental Quality Memorandum for Heads of Federal Departments and Agencies, *Effective Use of Programmatic NEPA Reviews*, Dec. 18, 2014 (“If supplementation is not required, agencies should consider documenting that determination. For example, an agency could include a memorandum to the administrative record for the programmatic NEPA review.”).

33. NEPA compliance requires federal agencies to provide an opportunity for public participation. *See* 40 C.F.R. § 1506.6 (the agency must “[m]ake diligent efforts to involve the public” in preparing environmental documents, give “public notice of . . . the availability of environmental documents so as to inform those persons . . . who may be interested or affected,” and “[s]olicit appropriate information from the public”). *See also* FAA Order 1050.1F, 2-5.

The Administrative Procedure Act

34. The APA provides for judicial review of agency actions such as those at issue here. A reviewing court shall “hold unlawful and set aside” any agency action found to be “arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law,” or that was promulgated “without observance of procedure required by law.” 5 U.S.C. § 706(2)(A), (D).

35. The APA confers a right of judicial review on any person who is adversely affected by agency action. 5 U.S.C. § 702.

The Endangered Species Act

36. In enacting the ESA, Congress intended listed species to be afforded the highest of priorities. The ESA's purpose is "to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, [and] to provide a program for the conservation of such endangered species and threatened species." 16 U.S.C. § 1531(b).

37. To fulfill the substantive purposes of the ESA, federal agencies are required to engage in Section 7 consultation with FWS to "insure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined . . . to be critical." 16 U.S.C. § 1536(a)(2).

38. Section 7 consultation is required for "any action [that] may affect listed species or critical habitat." 50 C.F.R. § 402.14. The duties in ESA Section 7 are only fulfilled by an agency's satisfaction of the consultation requirements that are set forth in the implementing regulations for Section 7 of the ESA, 50 C.F.R. §§ 402.10-402.16, and only after the agency lawfully complies with these requirements may an action that "may affect" a protected species go forward.

39. Each federal agency must review its actions at "the earliest possible time" to determine whether any action "may affect" listed species or their critical habitat in the "action area." *Id.* § 402.14(a). The "action area" encompasses all areas that would be "affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." *Id.* § 402.02. The term "may affect" is broadly construed to include "[a]ny possible effect, whether beneficial, benign, adverse, or of an undetermined character," and thus is easily triggered.

Interagency Cooperation – Endangered Species Act of 1973, As Amended, 51 Fed. Reg. 19,926 (June 3, 1986).

40. If an action agency concludes that the action is “likely to adversely affect” listed species or critical habitat, the agency must engage in “formal consultation” with FWS to meet the ESA’s substantive “no jeopardy” mandate. 16 U.S.C. § 1536(a)(2); 50 C.F.R. § 402.14.

41. Formal ESA consultation commences with the action agency’s written request for consultation and concludes with FWS’ issuance of a “biological opinion.” 50 C.F.R. § 402.14(g)(4). During formal consultation, FWS and the action agency must evaluate the “effects of the action,” including all direct and indirect effects of the proposed action, plus the effects of actions that are interrelated or interdependent, added to all existing environmental conditions—that is, the “environmental baseline.” *Id.* § 402.02. The environmental baseline includes the “past and present impacts of all Federal, state, or private actions and other human activities in the action area . . .” *Id.* The effects of the action must be considered together with “cumulative effects,” which are “those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation.” *Id.*

42. The biological opinion sets forth FWS’ determination as to whether the effects of the action are “likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat.” *Id.* § 402.14(g)(4). To “jeopardize the continued existence of” means “to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species.” *Id.* § 402.02. The determination of whether an activity is likely to jeopardize the continued

existence of a species must be based solely on “the best scientific and commercial data available,” 16 U.S.C. § 1536(a)(2), and FWS must use the best available science in formulating its biological opinion and approving incidental take. 50 C.F.R. § 402.14(g)(8).

43. After the issuance of a biological opinion and “where discretionary Federal involvement or control over the action has been retained or is authorized by law,” the action agency and FWS must reinitiate formal consultation: “(1) [i]f the amount or extent of taking specified in the incidental take statement is exceeded; (2) [i]f new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered; (3) [i]f the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the biological opinion; or (4) [i]f a new species is listed or critical habitat designated that may be affected by the identified action.” 50 C.F.R. § 402.16.

FACTUAL BACKGROUND

44. Plaintiffs reallege, as if fully set forth herein, each and every allegation contained in Plaintiffs’ initial Complaint regarding the Boca Chica area and its importance to the people and wildlife that are adversely affected by SpaceX’s activities.

The Environmental Impacts of the April 20 SpaceX Launch

45. Plaintiffs reallege, as if fully set forth herein, each and every allegation contained in the initial Complaint regarding the environmental impacts of the Starship/Superheavy Launch Program. Regarding the impacts of the April 20 launch event, Plaintiffs provide the following additional information:

46. The April 20, 2023, launch of the Starship/Superheavy rocket resulted in the explosion of the rocket and the destruction of the launch pad.

47. FWS has stated that the “[i]mpacts from the launch include numerous large concrete chunks, stainless steel sheets, metal and other objects hurled thousands of feet away along with a plume cloud of pulverized concrete that deposited material up to 6.5 miles northwest of the pad site.” The debris field included designated critical habitat for the ESA-protected piping plover as well as the communities of Brownsville and Port Isabel. Some of the debris fell outside of the debris study area considered in the FAA’s 2022 PEA and FWS’ 2022 BiOp.

48. The FWS documented 385 acres of debris on SpaceX’s facility and at Boca Chica State Park, which is leased by the Service and managed as a component of the Lower Rio Grande National Wildlife Refuge.

49. FWS further documented, as a consequence of the launch, a 3.5-acre fire that started south of the pad site on Boca Chica State Park land.

50. Following the April 20 launch event, FWS personnel and wildlife researchers were not able to access the Boca Chica area to investigate the impacts of the launch for 48 hours due to SpaceX’s decision to keep the area closed, which prevented the Service from conducting a timely appraisal of the impacts of the anomaly on listed species. The delay in accessing the area may have resulted in carcasses being removed by predators/scavengers or otherwise; therefore, it remains unknown whether the explosion resulted in take of listed species.

FAA’s Review of the April 20 Launch

51. In response to the April 20 launch failure, the FAA opened a “mishap investigation,” ostensibly to determine the root causes of the explosion and the corrective actions that SpaceX would need to take to prevent it from reoccurring.

52. Rather than conduct its own independent investigation, the FAA allowed SpaceX to conduct the mishap investigation. The company submitted a report to the FAA on August 21, 2023. On September 7, 2023, the FAA issued a letter “accept[ing] the root causes and corrective actions described in the [SpaceX] mishap report,” and closing the mishap investigation. The FAA required SpaceX to implement the 63 corrective actions that the company had identified in its mishap report.

53. The FAA has not provided any analysis showing that the 63 corrective action measures would prevent further significant environmental harm. Rather, the agency appears to have accepted SpaceX’s assertion that the measures will be sufficient to prevent further environmental harm from the Starship/Superheavy Launch Program.

54. On information and belief, the FAA did not conduct any independent analysis of whether additional corrective actions should be required to prevent further explosions and environmental harm. The FAA also failed to allow for public comment on the proposed corrective action measures and did not consider whether there were alternatives to any of the proposed corrective actions that would result in less environmental harm.

55. On September 13, Elon Musk announced that SpaceX had already completed all 63 corrective actions and was seeking a new/amended license for further launches of the Starship/Superheavy rocket.

56. On November 14, 2023, the FAA issued a “written reevaluation,” which, according to FAA, was intended to determine whether a supplemental NEPA analysis was required before issuing a permit for the second launch of the Starship/Superheavy rocket. The written reevaluation concluded that no supplemental NEPA review was required, and that “the modification of an existing vehicle operator license for Starship/Super Heavy operations

conforms to the prior environmental documentation, that the data contained in the 2022 PEA remains substantially valid, that there are no significant environmental changes, and all pertinent conditions and requirements of the prior approval have been met or will be met in the current action.”

57. The written reevaluation focused on the environmental impacts of SpaceX’s deluge water system, including potential harm from runoff that could be contaminated with metals, as well as potential changes to the adjacent saline habitat from freshwater inundation.

58. FAA did not undertake any analysis of whether the reconfigured launch pad and the deluge water system would be sufficient to prevent further explosions of the launch pad. On information and belief, the steel plate deluge system that SpaceX employed has not been used at any other launch facility and is therefore a novel and unproven design. Yet the FAA failed to analyze whether the steel plate system would be sufficient and did not provide any analysis of alternative designs to protect the launch pad from further explosions. The written reevaluation simply states that FAA does not anticipate further explosions of the launch pad due to the redesign of the pad and the implementation of the deluge water system; however, that determination is not supported with any analysis or studies.

59. The deluge water system that SpaceX designed for the Starship/Superheavy launch pad relies on a steel plate with small holes, through which water is pumped during the launch in an attempt to reduce the heat impacting the concrete pad. The FAA acknowledges that up to 190 pounds of steel will be ablated (i.e., eroded) during each launch and rocket test, which will result in metals such as nickel and chromium being discharged in a plume or in ground flow. These metals are known to have adverse impacts on wildlife.

60. The written reevaluation states that SpaceX intends to reuse the steel plate, but it contains no analysis of how the loss of up to 5,700 pounds of the steel plate each year through ablation will affect its ability to remain functional and prevent further explosions. There is no discussion of a monitoring protocol for the steel plate and no plan has been provided for replacing the steel plate in the future.

61. The written reevaluation also fails to analyze the environmental impacts of the April 20 launch event, including the explosion of the launchpad. The written reevaluation does not provide any analysis of the impacts to wildlife from chunks of concrete being hurled thousands of feet into sensitive tidal flats, as well as the impacts of ongoing efforts to recover such debris. Nor does it address the environmental and health impacts associated with the dust that blanketed nearby towns, which was likely inhaled by thousands of people.

62. The written reevaluation also failed to address the noise levels from the April 20 launch event or issues related to vibration levels or heat from the April 20 launch, which on information and belief exceeded what was analyzed in the 2022 PEA.

63. The FAA did not provide the written reevaluation to the public until November 15, just a few days before the second launch of the Starship/Superheavy rocket took place. FAA did not provide any opportunity for the public to provide comments on the environmental impacts of FAA's decision to allow further launches and the impacts of the changes made to the launch program.

FWS's Review of the April 20 Launch

64. The FAA initiated formal ESA Section 7 consultation on the issuance of a launch license to SpaceX at the Boca Chica Launch Site for the Starship/Super Heavy Launch Vehicle Program and provided a biological assessment to FWS on June 21, 2021. The biological

assessment found that SpaceX's operations were likely to adversely affect several ESA-listed species, including piping plovers, northern aplomado falcons, ocelots, red knots, and five species of imperiled sea turtles.

65. On May 12, 2022, FWS issued its 2022 BiOp. The BiOp concluded that the launch program may harm listed species and their critical habitat through habitat loss and fragmentation, noise, traffic, heat plumes and rocket explosions, but concluded that it would not jeopardize the continued existence of the affected species. That conclusion was based on various assumptions regarding the potential for rocket explosions (referred to as "anomalies"), the area where debris would fall when an anomaly occurs, predicted noise levels from launches, and other parameters. The 2022 BiOp did not discuss or analyze the impacts to listed species and their critical habitat from the destruction of the launch pad during a rocket launch, nor did it consider the use of a deluge water system.

66. On May 5, 2023, FWS sent a letter to the FAA stating that reinitiation of consultation was warranted due to the debris from the destruction of the launch pad during the April 20 launch, and that it wanted to meet with FAA to discuss noise, temperature, and vibration levels, as well as anticipated alterations to the Boca Chica facility and launch operations (i.e., additional lighting and launch pad redesign) and cleanup methods in response to the April 20 event. The letter also stated that the Service believed that reducing the number of launches may be necessary to reduce number of mishaps/anomalies, and thus the impacts to listed species.

67. While the FWS's May 5 letter stated that sound levels during the launch appeared to have been within predicted levels, in emails Plaintiffs obtained through Freedom of Information Act requests, the agency admits that the equipment used to measure sound may not

have been calibrated correctly, and that FWS personnel were not adequately trained to use such equipment. Measurements taken by other parties showed that noise levels were well in excess of what was contemplated in the 2022 BiOp.

68. Plaintiffs filed a formal notice letter with FAA and FWS on July 12, 2023, regarding the need to reinitiate and complete ESA Section 7 consultation to address the unanticipated explosion of the launch pad, the excessive noise from the launch, the unexplained closure of the Boca Chica area for more than 48 hours that prevented the Service from conducting a timely appraisal of the impacts of the anomaly on listed species, and the impacts of new infrastructure or other changes to the launch facility in response to the event. Plaintiffs further explained that the April 20 launch demonstrated that the potential harm from the Starship/Superheavy Launch Program exceeds what FWS considered when previously reviewing the launch program in the 2022 BiOp.

69. The FAA reinitiated formal consultation with FWS on September 1, 2023, and provided an addendum to the FAA's 2022 biological assessment in October of 2023. FWS acknowledged the request to reinitiate by letter on October 19, 2023, and by a revised letter on October 30, 2023. FWS issued an addendum to the 2022 BiOp on November 14, 2023.

70. The FWS BiOp addendum does not discuss or address the noise levels from the April 20 launch event or the issues surrounding the equipment used to measure sound or the training of FWS personnel to use such equipment.

71. The FWS BiOp addendum does not discuss or address any issues related to vibration levels or heat from the April 20 launch, despite FWS stating in its May 5 letter that it had concerns about the impacts of the April 20 launch from excessive heat and vibration.

72. The FWS BiOp addendum briefly addresses the April 20 launch as part of the “updated environmental baseline” by discussing before-and-after biological monitoring data for vegetation and birds, but it fails to fully analyze the impacts of the explosion of the launchpad on habitat for listed species.

73. According to the BiOp addendum, the monitoring for impacts to birds did not find any direct harm to listed species; however, FWS was unable to access the area for 48 hours after the explosion and thus was unable to determine whether any take of listed species occurred. The surveys did, however, show a large decline in the number of endangered piping plovers in the study area after the launch took place.

74. The monitoring survey for impacts to vegetation showed harm to adjacent habitat, including from the 3.5-acre fire started south of the pad site on Boca Chica State Park land. However, the BiOp does not discuss or analyze the short and long-term impacts of the explosion on the surrounding habitat, including the harm from chunks of concrete being hurled thousands of feet into sensitive tidal flats, as well as the impacts of efforts to recover such debris, which FWS previously stated can cause significant harm by altering the hydrology (i.e., flow of water) over the tidal flats.

75. The FWS BiOp addendum focused almost entirely on the implementation of a new deluge water system, which was not considered in the 2022 BiOp.

76. The BiOp addendum states that FWS does not anticipate further explosions of the launch pad due to the redesign of the pad and the implementation of the deluge water system; however, that determination is not supported with any analysis or studies. The BiOp addendum does not consider or analyze whether the novel deluge system designed by SpaceX will be sufficient to prevent further explosions of the launch pad. It provides no analysis of the impacts

to the efficacy of the deluge system from the ablation (erosion) of up to 190 pounds of steel from the steel plate from each launch and test event, which could result in the loss of 5,700 pounds of steel plate each year. The BiOp addendum also fails to address how such ablation could reduce the ability of the steel plate to prevent explosions of the launch pad during future launches and provides no protocol for monitoring and replacing the steel plate as it erodes.

FIRST SUPPLEMENTAL CLAIM FOR RELIEF

The FAA violated the National Environmental Policy Act, 42 U.S.C. §§ 4321 et seq., applicable regulations, and the Administrative Procedure Act, 5 U.S.C. §§ 701-706

77. Plaintiffs reallege, as if fully set forth herein, each and every allegation contained in the preceding paragraphs.

78. The FAA must prepare a supplemental NEPA analysis (EA or EIS) if (1) the agency makes substantial changes in the proposed action that are relevant to environmental concerns, or (2) there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts. FAA Order 1050.1F, 9-3.

79. The April 20 launch event and the significant environmental harm from the explosion of the launch pad—which ejected chunks of concrete and metal thousands of feet into the sensitive tidal flat habitat and covered communities in dust debris, none of which was discussed in the 2022 PEA—presents significant new circumstances relevant to the environmental impacts of the Starship/Superheavy Launch Program. The 63 corrective actions required to respond to the explosion—including the implementation of the deluge water system—represent substantial changes to the launch program, the efficacy and impacts of which need to be addressed in a supplemental NEPA analysis.

80. The FAA, however, erroneously concluded in the written reevaluation that no supplemental NEPA analysis was required. Defendants' failure to prepare a supplemental NEPA

analysis is a clear violation of NEPA and the FAA's implementing regulations. FAA Order 1050.1F, 9-3.

81. A written reevaluation is only intended to determine whether a supplemental EA or EIS is necessary. It cannot provide the full analysis of the environmental impacts of an agency action that NEPA requires. Indeed, the FAA's written reevaluation failed to take the requisite "hard look" at several aspects of the April 20 launch, including the excessive noise and vibrations from the launch, as well as the impacts from the explosion of the launch pad and efforts to recover the debris from sensitive tidal flats.

82. In violation of NEPA, the FAA also failed to address whether the proposed changes to the launch pad and the deluge water system would be sufficient to prevent a further anomaly. The FAA failed to consider alternatives to the atypical deluge water system designed by SpaceX and did not provide any analysis regarding the impacts of ablation on the efficacy of the steel plate for preventing the pad from exploding again during future launches.

83. The written reevaluation failed to fully analyze the environmental impacts of the April 20 launch event, including the explosion of the launchpad. The written reevaluation does not provide any analysis of the impacts to wildlife from chunks of concrete being hurled thousands of feet into sensitive tidal flats, as well as the impacts of efforts to recover such debris. Nor does it address the environmental and health impacts associated with the dust that blanketed nearby towns.

84. The FAA also failed to provide any opportunity for public comment on the impacts of the April 20 launch and the changes made to the Starship/Superheavy launch program. The purpose of NEPA is to ensure that the FAA has sufficient information before it, including input from the public, regarding the environmental impacts of permitting further

launches of the Starship/Superheavy launch program. By failing to provide an opportunity for public comment, the FAA has violated the purpose and goals of NEPA. *See* 40 C.F.R. § 1506.6; FAA Order 1050.1F, 2-5.

85. Not only is the FAA's failure to provide any supplemental NEPA analysis arbitrary and capricious and a violation of NEPA, but that analysis must be in the form of an EIS. The April 20 launch removes any doubt that SpaceX's activities have caused, and risk further, significant environmental harm. Defendants failed to set forth a reasonable basis for concluding that the impacts of the launch program can and will be mitigated such that they would no longer be considered "significant" under NEPA. The environmental impacts associated with the SpaceX launch program are undoubtedly "significant," and thus by failing to prepare an EIS (or supplemental EIS), the FAA has violated NEPA, 42 U.S.C. § 4332(2)(C), and its implementing regulations, 40 C.F.R. § 1501.3.

86. For the reasons set forth above, the FAA's reevaluation and decision not to prepare a supplemental EA or EIS in connection with the Starship/Super Heavy Launch Vehicle Program, and its decision to authorize a further launch without conducting any supplemental EA or EIS, violated NEPA and is arbitrary and capricious, an abuse of discretion, or otherwise not in accordance with law. *See* 5 U.S.C. § 706(2)(A).

SECOND SUPPLEMENTAL CLAIM FOR RELIEF

FWS' Violation of the Administrative Procedure Act, 5 U.S.C. § 706(2)(A) (The FWS' BiOp Addendum is Arbitrary and Capricious)

87. Plaintiffs reallege, as if fully set forth herein, each and every allegation contained in the preceding paragraphs.

88. Reinitiation of formal ESA Section 7 consultation was required to address the impacts of the April 20 launch explosion, as well as changes made to the launch program as a result of the explosion.

89. On November 14, 2023, FWS issued an addendum to the Biological Opinion for the SpaceX Starship/Superheavy launch program.

90. FWS failed, however, to analyze the destruction of the launch pad in the BiOp addendum—which had not been contemplated or addressed in the 2022 BiOp—and the large amount of debris that was scattered over sensitive tidal flats that provide habitat for protected species, some of which fell outside the area that FWS had previously considered when assessing the potential impacts of the launch program.

91. The BiOp addendum fails to address the short and long-term impacts of the explosion on the surrounding habitat, including impacts to the hydrology of the sensitive tidal flats from the chunks of concrete that were hurled thousands of feet, as well as the impacts of efforts to recover such debris, which FWS previously stated can cause significant harm.

92. The brief acknowledgement of the launch pad explosion in the BiOp addendum's description of the environmental baseline is inadequate to analyze the full impacts of the April 20 launch. Since FWS personnel were unable to access the area for 48 hours after the explosion, they were unable to determine whether any take of listed species occurred as carcasses could have been removed by scavengers or otherwise. The survey data in fact shows a sharp reduction in the ESA-listed plover population after the launch, suggesting that plovers may have been killed or driven from their habitat by the explosion.

93. FWS further failed to address the impacts to listed species from the excessive noise and vibrations from the April 20 launch, nor did it address concerns regarding the

equipment used to measure noise levels or the lack of training of FWS personnel to use such equipment.

94. FWS also failed to adequately analyze the deluge water system, and provided no analysis regarding whether it is, and will continue to be, sufficient to prevent further harm to the surrounding habitat from an explosion. The BiOp addendum provides no analysis of the efficacy of the deluge system or the impacts of ablation (erosion) of the steel plate and how such ablation could reduce the ability of the steel plate to prevent explosions of the launch pad during future launches.

95. For the reasons set forth above, FWS has failed to evaluate the “effects of the action,” as the ESA requires, 50 C.F.R. § 402.02, and the BiOp addendum is therefore arbitrary and capricious, an abuse of discretion, or otherwise not in accordance with law, in violation of the ESA and the APA. *See* 5 U.S.C. § 706(2)(A).

PRAYER FOR RELIEF

WHEREFORE, Plaintiffs respectfully request that this Court:

- a) Declare that the FAA’s written reevaluation and failure to prepare a supplemental EA or EIS before issuing a permit for the second launch of the Starship/Super Heavy rocket violated NEPA and applicable regulations;
- b) Order the FAA to prepare a supplemental EA or EIS;
- c) Declare that FWS’ BiOp addendum is arbitrary and capricious;
- d) Vacate FWS’s BiOp addendum and remand the BiOp addendum to FWS;
- e) Award Plaintiffs their costs, expenses, and attorneys’ fees under applicable law; and
- f) Provide for such other relief as the Court deems just and appropriate.

December 15, 2023.

Respectfully submitted,

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