VENABLE LLP
Tyler G. Welti (SBN 257993)
101 California Street, Suite 3800
San Francisco, CA 94111
Telephone: (415) 653-3750
Facsimile: (415) 653-3755
tgwelti@venable.com

Colin B. Vandell (SBN 240653)
2049 Century Park East, Suite 2300
Los Angeles, California 90067
Telephone: (310) 229-9900
Facsimile: (310) 229-9901
cvandell@venable.com

Mitchell Y. Mirviss (*pro hac vice* to be filed)
750 East Pratt Street, 9th Floor
Baltimore, MD 21202
Telephone: (410) 244-7412
Telephone: (410) 244-7742
mymirviss@venable.com

Attorneys for Plaintiff, SPACE EXPLORATION TECHNOLOGIES CORP.

UNITED STATES DISTRICT COURT

CENTRAL DISTRICT OF CALIFORNIA

SPACE EXPLORATION TECHNOLOGIES CORP.,

Plaintiff,

v.

CALIFORNIA COASTAL COMMISSION, a California state agency; KATE HUCKELBRIDGE, in her capacity as the Executive Director of the Commission; EFFIE TURNBULL-SANDERS, in her capacity as a Commissioner of the Commission; DAYNA BOCHCO, in her capacity as a Commissioner of the Commission; CARYL HART, in her capacity as a Commissioner of the Commission; SUSAN LOWENBERG, in her capacity as a Commissioner of the Commission; ANN NOTTHOFF, in her capacity as a Commissioner of the Commission; LINDA ESCALANTE, in

Case No.

COMPLAINT FOR DECLARATORY AND INJUNCTIVE RELIEF

her capacity as a Commissioner of the Commission; MIKE WILSON, in his capacity as a Commissioner of the Commission; CATHERINE RICE, in her capacity as a Commissioner of the Commission; PALOMA AGUIRRE, in her capacity as a Commissioner of the Commission; MEAGAN HARMON, in her capacity as a Commissioner of the Commission; ROBERTO URANGA, in his capacity as a Commissioner of the Commission; JUSTIN CUMMINGS, in his capacity as a Commissioner of the Commission; and GRETCHEN NEWSOM, in her capacity as Alternate Commissioner of the Commission,

Defendants.

I. INTRODUCTION

1. This case is about a state agency—Defendant California Coastal Commission (the Commission)—egregiously and unlawfully overreaching its authority. First, the Commission has engaged in naked political discrimination against Plaintiff Space Exploration Technologies Corp. (SpaceX) in violation of the rights of free speech and due process enshrined in the First and Fourteenth Amendments of the United States Constitution. Rarely has a government agency made so clear that it was exceeding its authorized mandate to punish a company for the political views and statements of its largest shareholder and CEO. Second, the Commission is trying to unlawfully regulate space launch programs—which are critical to national security and other national policy objectives—at Vandenberg Space Force Base (the Base), a federal enclave and the world's second busiest spaceport.

2. The Commission, an agency of the State of California, is charged with regulating the use of land and water within the state's coastal zone. For decades, the Commission has, without fail, agreed with the longstanding position of the U.S. Department of the Air Force (Air Force) that the Base's commercial space launch programs are federal agency activities that are not subject to Commission's

permitting authority or control. Indeed, until now, the Commission never once disputed this position since it was formed in 1972. And for decades, the Commission has repeatedly concurred in determinations by the Air Force pursuant to the Coastal Zone Management Act (CZMA) that the Base's launch programs are consistent with policies protecting California's coastal resources. Even now, the Commission has continued to agree that every other commercial launch operator's launch programs at the Base are federal agency activities, as demonstrated by recent concurrences relating to other commercial launch providers.

3. Now, however, years after the Base's Falcon 9 program was first approved by the Air Force and other federal agencies—and after the Commission itself recently found Falcon 9 launches are consistent with coastal resource protections—the Commission has decided to ignore longstanding federal policy and law, its own established practices and findings, and the limitations on its authority under the law to impose a different standard on SpaceX. Specifically, the Commission refused to concur with a proposal by the United States Department of the Air Force to increase from 36 to 50 the number of launches that SpaceX can perform at the Base. And the Commission now posits that SpaceX's launch program at the Base is federally permitted or licensed activity, as so SpaceX must obtain a coastal development permit from the Commission to conduct launches from the Base.

4. Before the Commission voted, the Air Force completed a comprehensive environmental review involving numerous federal agency partners, and it worked with the Commission to identify and implement a host of measures—far beyond what is legally required—to mitigate any impact that the increased launch cadence might have on coastal resources. The Commission's own staff recommended concurrence in detailed staff reports. But at its October 10, 2024 hearing on the Air Force's proposal, the Commission voted 6-4 not to concur. The Commissioners expressly stated that this decision was not based on concerns about

impacts to coastal resources, but instead on the political views held by SpaceX's largest shareholder and CEO, Elon Musk.

5. The Commission's public hearing record indisputably shows overt, and shocking, political bias. There is no pretext—the political basis of the Commission's action is plain for all to see.

6. As Commissioner Caryl Hart said: the basis for the decision was not that a commercial operator with a space launch program at the Base was increasing its annual launch cadence, but rather that *SpaceX* was doing so: "The concern is with *SpaceX* increasing its launches, not with the other companies increasing their launches . . . we're dealing with a company . . . the head of which has aggressively injected himself into the Presidential race and made it clear what his point of view is." Other Commissioners weighed in with similarly irrelevant, biased concerns about Mr. Musk's politics:

a. Commissioner Gretchen Newsom read a prepared statement to express her displeasure with "Elon Musk [] hopping about the country, spewing and tweeting political falsehoods and attacking FEMA while claiming his desire to help the hurricane victims with free Starlink access to the internet."

b. Commissioner Mike Wilson shared his concerns that Mr. Musk controls "one of the most extensive communications networks on the planet," and that "just last week" Mr. Musk was "speaking about political retribution on a national stage."

c. Commissioner Dr. Justin Cummings "share[d] some concerns . . . Commissioner Wilson brought up" regarding use of Starlink and Mr. Musk's political beliefs: "And so while . . . we are all trying to operate in this apolitical space, we do know that the person who controls these companies has enough power to not work in the best interest, when they feel like it, of our allies."

7. Even leaving aside their irrelevance to the decision, these purported "concerns" are based on a gross misunderstanding of the actual facts.[1]

8. To make it even clearer that the Commission's decision was based on its political biases and other irrelevant, misplaced concerns, the Commission recently approved another commercial space launch operator launching up to 60 launches a year from the same Base, accepting that this operator's launch program, including commercial launches, are federal agency activities.

9. Thankfully, the fundamental rights of free speech and due process enshrined in our Constitution prohibit precisely this kind of political witch hunting and abuse of power by rogue state agency officials.

10. But the Commission's unconstitutional overreach does not stop at punishing SpaceX for constitutionally protected speech, beliefs, and practices that has no relevance to the proposed launches' effects on coastal resources—the actual issue pending before the Commission. Its actions to regulate the Falcon 9 launch program are further prohibited by three separate legal principles:

a. The Commission's decision interferes with the operations of the

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1 Regarding Dr. Cummings's purported concerns about Ukraine, the Department of Defense has repeatedly and publicly stated how, relating to Ukraine, SpaceX "has been a great partner on this, and they have done everything we have asked—everything" (https://warontherocks.com/2024/04/spacepower-and-the-private-sector/), and that SpaceX has not only been "cooperative with USG and Ukraine government, they've been forward leaning" (https://www.armed-services.senate.gov/hearings/to-receive-testimony-on-the-department-of-defense-space-activities-in-review-of-the-defense-authorization-request-for-fiscal-year-2025-and-the-future-years-defense-program). The Vice Prime Minister of Ukraine has said, "Starlink is indeed the blood of our entire communications infrastructure now," noting that the network has saved "thousands of lives," and that "[d]efinitely Elon Musk is among the world's top private donors supporting Ukraine. Starlink is an essential element of our critical infrastructure." https://twitter.com/FedorovMykhailo/status/1589342033858600 97. Secretary of State Anthony Blinken has said that "Starlink has been a vital tool for Ukrainians to be able to communicate with each other and particularly for the military to communicate in their efforts to defend all of Ukraine's territory." https://www.bloomberg.com/news/articles/2023-09-10/blinken-says-musk-s-starlink-should-keep-giving-ukraine-full-use.

national space launch program conducted at a U.S. Air Force base. The CZMA gives the federal government, not state governments, power to control federal agency activities on federal land. This exclusive authority and broad area of federal control preempts any application of state law, especially state law that the Commission would wield to interfere with control of operations on a U.S. military base.

b. The launch facilities at the Base are situated on a "federal enclave" protected by the Constitution from intrusive state regulation. Military bases are paradigmatic examples of federal enclaves that the Constitution expressly places under exclusive federal jurisdiction. The Commission's intrusion upon national defense and intelligence interests and the operations of the U.S. military on a federal enclave is extraordinary and clearly prohibited.

c. The Commission's own governing statute, the California Coastal Act of 1976 (Coastal Act), expressly states that it does not apply to federal land—going so far as to define "coastal land" subject to the law to exclude all federal territory. The Commission's decision therefore violates the very foundation of the Commission's purported authority.

11. Finally, the justification the Commission relied on to unlawfully intrude into the national security and the other federal interests implicated by SpaceX's launch program—that some of SpaceX's launches at the Base are commercial—misses the mark.

12. First, SpaceX, as one of only two certified National Security Space Launch (NSSL) program providers to the U.S. Government, is contractually required to share data with the U.S. Government for *every single one of its launches*, whether carrying a U.S. Government payload or not. This mandatory federal government data

collection is conducted pursuant to U.S. Government mission assurance activities—for which the U.S. Government pays SpaceX. It demonstrates that SpaceX's commercial launches contribute to the overall national security space launch enterprise.

13. Second, the U.S. Government has long established that commercial launch services are critical to America's assured access to space. Commercial space launches, with a diverse set of non-U.S. Government customers, enable affordable, routine, and regular access to space that does not depend solely on the U.S. Government as a customer. Federal law, National Space Policy, and National Space Transportation Policy going back decades have recognized that for U.S. Government payload launches to be reliable and affordable, commercial space launch providers who perform U.S. Government launches must be commercially successful by launching both government and commercial missions.

14. More recently, the National Defense Strategy, the U.S. Defense Department Commercial Space Strategy, and the U.S. Space Force Commercial Space Integration Strategy, uniformly concluded that commercial space capabilities—including launch—are critical to the national security interests of the United States. The Commission's efforts to falsely divide these activities into separate categories is inconsistent with national policy, law, and national defense strategy.

15. For these reasons, the Commission's punitive decision, violating core Constitutional protections of free speech and due process, undermines U.S. national security and is blatantly illegal, trampling over (i) federal law; (ii) exclusive federal jurisdiction over military bases and other federal enclaves; and (iii) the Commission's own governing statutory boundaries.

16. Through this lawsuit, SpaceX seeks to protect these fundamental rights by (i) obtaining a declaration that the Commission's actions unconstitutionally punish SpaceX, impermissibly usurp federal law governing federal land and federal

programs, and even vault past the statutory boundaries limiting the Commission's authority; and (ii) enjoining the Commission from rejecting the Air Force's action and enforcing the Coastal Act's permit requirements against SpaceX.

II. PARTIES

17. Plaintiff SpaceX is a privately held American space technology and transportation company that is incorporated and headquartered in Texas. SpaceX maintains facilities at and launches Falcon 9 rockets from Space Launch Complex 4 (SLC-4) at the Base in Santa Barbara County, California. Elon Musk owns over 40% of SpaceX, making him its principal owner. He serves as its CEO and chairs its board of directors.

18. Defendant the California Coastal Commission is a quasi-judicial state agency created by the California Coastal Act of 1976, California Public Resources Code §§ 30000 *et seq.*, with the express power to sue and be sued in federal court. *See* Pub. Res. Code §§ 30334(b), 30803(a).

19. Individual Defendant Kate Huckelbridge is sued in her official capacity as the Executive Director of the Commission. Defendant Huckelbridge is responsible for the direction and supervision of activities undertaken by the Commission.

20. Individual Defendant Effie Turnbull-Sanders is sued in her official capacity as a voting Commissioner of the Commission.

21. Individual Defendant Dayna Bochco is sued in her official capacity as a voting Commissioner of the Commission.

22. Individual Defendant Caryl Hart is sued in her official capacity as a voting Commissioner and Chair of the Commission.

23. Individual Defendant Susan Lowenberg is sued in her official capacity as a voting Commissioner of the Commission.

24. Individual Defendant Ann Notthoff is sued in her official capacity as a voting Commissioner of the Commission.

25. Individual Defendant Linda Escalante is sued in her official capacity as a voting Commissioner of the Commission.

26. Individual Defendant Mike Wilson is sued in his official capacity as a voting Commissioner of the Commission.

27. Individual Defendant Katherine Rice is sued in her official capacity as a voting Commissioner of the Commission.

28. Individual Defendant Paloma Aguirre is sued in her official capacity as a voting Commissioner of the Commission.

29. Individual Defendant Meagan Harmon is sued in her official capacity as a voting Commissioner of the Commission.

30. Individual Defendant Roberto Uranga is sued in his official capacity as a voting Commissioner of the Commission.

31. Individual Defendant Gretchen Newsom is sued in her official capacity as Alternate for Commissioner Ann Notthoff. Ms. Newsom served as a voting Commissioner on matters relating to the Falcon 9 launch program at the Base.

32. Individual Defendant Cassidy Teufel is sued in his official capacity as Deputy Director of the Commission's Energy, Ocean Resources, and Federal Consistency Division.

33. The individual Defendants are officers or agents of the Commission and are being sued in their official capacities as officers or agents of the Commission. In these capacities, the individual Defendants and their employees, officers, agents, and assigns are charged with following and implementing the federal and state laws and regulations governing the management of California's coastal resources.

III. JURISDICTION AND VENUE

34. This Court has subject matter jurisdiction over this action pursuant to 28 U.S.C. §§ 1331 (federal question jurisdiction) and 1343(a)(3) (federal civil rights jurisdiction). This action asserts claims arising under the Supremacy Clause, U.S. Const. Art VI, cl. 2; the doctrine of federal preemption; the Coastal Zone

Management Act (CZMA), 16 U.S.C. §§ 1451, *et seq*.; the First and Fourteenth Amendments to the U.S. Constitution; 42 U.S.C. § 1983; and other federal laws.

35. This Court also has subject matter jurisdiction under 28 U.S.C. § 1331 based on U.S. Const. Art. I, § 8, cl. 17 and the federal enclave doctrine, which provide that conduct on a federal enclave is governed by federal law. This case concerns a space launch program on Vandenberg Space Force Base, and "[i]t is well-settled . . . that Vandenberg is a federal enclave under the federal government's exclusive legislative jurisdiction—and has been since 1943." *Haining v. Boeing Co.*, No. 2:12-CV-10704-ODW, 2013 WL 4874975, at *2 (C.D. Cal. Sep. 11, 2013) (citing *Taylor v. Lockheed Martin Corp*., 78 Cal. App. 4th 472, 480-81 (2000)). As such, the Commission's state law permitting jurisdiction does not apply on the Base. The State did not reserve jurisdiction to regulate activity on the Base when it ceded the land to the federal government. And Congress has not expressly provided that the Base is subject to the Coastal Act, a state law enacted long after the federal government assumed jurisdiction.

36. In addition to having original jurisdiction under the federal enclave doctrine, this Court has supplemental jurisdiction under 28 U.S.C. § 1367 over SpaceX's claim under the Coastal Act. That claim is so related to the federal causes of action that they together form part of the same case or controversy.

37. This Court is empowered to provide declaratory and injunctive relief in this action pursuant to the Declaratory Judgment Act, 28 U.S.C. §§ 2201 and 2202, and Federal Rules of Civil Procedure 57 and 65. This Court has jurisdiction to order prospective relief in the form of a declaratory judgment and an injunction against Defendants to end continuing violations of federal law by the Commission's officers and employees acting in their official capacities as officers of an agency of the State of California.

38. Venue is proper in this judicial district pursuant to 28 U.S.C. § 1391(b)(1) and (b)(2) because a substantial part of the events giving rise to this

action occurred in this District, including the launch operations at the Base that Defendants seek to regulate in violation of federal law. Additionally, the Commission and individual Defendants maintain an office in Ventura, California, which is in this District.

39. SpaceX has satisfied all exhaustion requirements, or no such requirements may be applied to SpaceX on the claims and facts alleged in this Complaint.

IV. LEGAL BACKGROUND

A. Coastal Zone Management Act

40. Congress enacted the CZMA in 1972 "to preserve, protect, develop, and where possible, to restore or enhance, the resources of the Nation's coastal zone." 16 U.S.C. § 1452.

41. The "coastal zone" includes "coastal waters," "adjacent shorelands," "islands, transitional and intertidal areas, salt marshes, wetlands, and beaches." It does not include "lands the use of which is by law subject solely to the discretion of . . . the Federal Government." *Id.* § 1453(1).

42. Coastal states implement the CZMA's policies through federally approved coastal management programs. *Id.* § 1455(d). A coastal management program must identify, among other things, the state's coastal zone boundaries, permissible coastal uses, and "enforceable policies" governing coastal zone use. *Id.*; *see id.* § 1453(6a) (defining enforceable policy). States must exclude from their coastal zones "lands owned, leased, held in trust or whose use is otherwise by law subject solely to the discretion of the Federal Government, its officers or agents." 15 C.F.R. § 923.33(a).

43. Section 307 of the CZMA requires federal agencies to coordinate with coastal states to ensure that federal action "within or outside the coastal zone that affects" coastal resources is consistent with the enforceable policies of approved coastal management programs. 16 U.S.C. § 1456(c). This is known as "federal

consistency review."

44. The CZMA and its implementing regulations identify different types of federal agency actions requiring federal consistency review and establish distinct review procedures for each type. Two types of actions reviewable under the CZMA are relevant here: "federal agency activity" and "federally licensed or permitted activity." *See* 15 C.F.R. Pt. 930 Subpts. C & D.

45. Federal agency activity is "any functions performed by or on behalf of a federal agency in the exercise of its statutory responsibilities." 16 U.S.C. § 1456(c)(1)(A); 15 C.F.R. § 930.31(a). Federal agency activity need only be "consistent to the maximum extent practicable" with a federally approved coastal management program. 16 U.S.C. § 1456(c)(1)(A); 15 C.F.R. § 930.32(a)(1). At least 90 days before approving federal agency activity, federal agencies must notify the state either that the activity will not have coastal effects (by submitting a "negative determination") or that the activity having coastal effects will be consistent to the maximum extent practicable with the enforceable policies of the state's approved coastal management program (by submitting a "consistency determination"). 16 U.S.C. § 1456(c)(1)(C); 15 C.F.R. §§ 930.35, 930.36. The state may either concur or object. 15 C.F.R. § 930.41. The state may also issue a "conditional concurrence" subject to specific conditions, which is treated as an objection if the federal and state agencies cannot come to an agreement on the state's conditions. *Id.* § 930.4. Ultimately, federal agency activity can proceed over the state's objection if the agency concludes it is consistent to the maximum extent practicable. *Id.*

46. Another type of federal action subject to consistency review is "[f]ederally licensed or permitted activity" (hereinafter, "federally permitted activity"). 16 U.S.C. § 1456(c)(3)(A); 15 C.F.R. § 930.51. Federally permitted activity must be fully consistent with the enforceable policies of a coastal management program. 16 U.S.C. § 1456(c)(3)(A); 15 C.F.R. § 930.57. A state may review only those federally permitted activities affecting the coastal zone that are

listed in its coastal management program. The state can request permission from the National Oceanic and Atmospheric Administration (NOAA) to review unlisted activities, but unlisted activities are otherwise not subject to state review. 15 C.F.R. § 930.54. To demonstrate consistency, the federal permit applicant must submit a consistency certification to the state. 16 U.S.C. § 1456(c)(3)(A); 15 C.F.R. § 930.57. The state has six months to review a certification. 15 C.F.R. §§ 930.60(a), 930.62(a). If the state objects to the certification, the federal agency is prohibited from issuing the permit, and the activity cannot proceed, unless the Secretary of Commerce finds the activity "is consistent with the objectives" of the CZMA "or is otherwise necessary in the interest of national security," overriding the state's objection. 16 U.S.C. § 1456(c)(3)(A); 15 C.F.R. § 930.64; *see* 15 C.F.R. Pt. 930 Subpt. H (appeal process).

B. California Coastal Act

47. The Coastal Act serves as California's implementation of the CZMA and constitutes "California's coastal zone management program within the coastal zone for purposes of the [CZMA]." Cal. Pub. Res. Code § 30008.

48. The Coastal Act established the Commission as the California state agency responsible for reviewing federal agency actions affecting the coastal zone for consistency with the federally approved California coastal management program. *Id.* § 30330.

49. The Commission includes twelve voting members who are selected by the Governor, the Senate Committee on Rules, and the Speaker of the Assembly, six of whom are elected officials of local governments and six of whom are appointed from the public at large. *Id.* § 30301.

50. California's coastal zone includes the land and water area of "the State of California" extending seaward to the outer limit of the State's jurisdiction and inland generally 1,000 yards from the mean hightide line. *Id.* § 30103. The Coastal Act recognizes that federal land is "excluded from the coastal zone pursuant to [the

CZMA]." *Id.* § 30008; *see* 15 U.S.C. § 1453(1); NOAA & California Coastal Commission, *Combined State of California Coastal Management Program and Final Environmental Impact Statement* at 40 (Aug. 1977).

51. The Base is federal land that is excluded from the coastal zone.

52. The Coastal Act requires a coastal development permit (CDP) for development within the coastal zone. *Id.* § 30600(a). The Commission or a local jurisdiction with permitting authority must issue a CDP if a proposed development will be consistent with the enforceable policies of the Coastal Act. *Id.* §§ 30604(a), 30200(a).

53. Development outside the coastal zone is not subject to the Coastal Act's CDP requirement, even if it causes impacts inside the coastal zone. *Id.* § 30604(d); 14 Cal. Code. Regs. § 13050.5(b); *Sierra Club v. Cal. Coastal Comm'n*, 35 Cal. 4th 839, 848, 855 (2005).

V. FACTUAL BACKGROUND

A. SpaceX and its service to the U.S. Space Program

54. SpaceX was founded in 2002 with the audacious goal of making life multiplanetary. Since then, SpaceX has become the world's leading launch services provider.

55. SpaceX's Falcon 9 rocket is the most reliable rocket ever flown. Falcon rockets have performed more than 385 successful missions with an over-99% success rate. Falcon first stages are the only orbital-class rocket stages capable of landing, recovery, and reuse, and SpaceX has successfully landed and reused them well over 300 times to date. This substantially reduces marine debris associated with rocket launches. SpaceX first launched Falcon 9 from the Base in 2013 and conducted 28 Falcon 9 launches from the Base in 2023 alone.

56. SpaceX is one of only two launch services providers certified to perform the most critical launches for the United States' national security and intelligence communities. In 2020, the Space Force (an agency within the Air Force)

selected SpaceX to launch not less than 40% of all National Security Space Launch (NSSL) payloads for the U.S. Government through at least 2027. Since that initial award, due to challenges with the other awardee's launch vehicle readiness, SpaceX has actually been assigned greater than 50% of NSSL missions during this contract period. SpaceX's Falcon rockets are critical to fulfilling the U.S. government's NSSL mission, as it is the *only* operational launch system currently certified to launch such missions. Indeed, the other certified NSSL launch provider's new launch vehicle is years behind being certified for NSSL missions, meaning SpaceX's Falcon 9 launch vehicles have launched far more than 40% of the country's NSSL missions within the current NSSL contract. Falcon 9 is the only American launch vehicle currently routinely delivering astronauts, supplies, and science to the International Space Station for NASA.

57. Falcon 9 also delivers Starlink and Starshield satellites into orbit. Starshield, leveraging the Starlink satellite constellation and ground infrastructure, provides secure satellite communications to multiple agencies within the Department of Defense. In 2023, the Space Force awarded SpaceX an initial $70-million contract to bolster Starshield's capabilities, using Starlink infrastructure for critical national security, defense, and emergency response operations for the Department of Defense and other U.S. federal agencies.[2] Separately, SpaceX has other, very substantial, national security space contracts with the U.S. Government relating to Starshield. SpaceX's operations at the Base are needed to fulfill critical contractual obligations to other U.S. Government agencies related to the implementation of the Starshield program.

B. The federal government's reliance on commercial space operators

58. For decades, Congress has recognized the critical importance of

[2] *See* Unshin Lee Harpley, *Space Force Awards Contract to SpaceX for Starshield, Its New Satellite Network*, AIR & SPACE FORCES MAGAZINE (Oct. 4, 2023), https://www.airandspaceforces.com/space-force-contract-spacex-starshield/.

commercial space launch operators like SpaceX to the nation's space program. In the Commercial Space Launch Act of 1994, as amended, Congress found that "the private sector in the United States has the capability of developing and providing private launching, reentry, and associated services that would complement the launching, reentry, and associated capabilities of the United States Government." 51 U.S.C. § 50901(a)(4). Congress also found "space transportation . . . is an important element of the transportation system of the United States, and in connection with the commerce of the United States there is a need to develop a strong space transportation infrastructure with significant private sector involvement." *Id.* § 50901(a)(8).

59. In the National Defense Authorization Act of 2004, Congress declared it "the policy of the United States for the President to undertake actions appropriate to ensure, to the maximum extent practicable, that the United States has the capabilities necessary to launch and insert United States national security payloads into space whenever such payloads are needed in space." 10 U.S.C. § 2273(a). Such actions include "at a minimum, providing resources and policy guidance to sustain" (*id.* § 2273(b)):

> (1) the availability of at least two space launch vehicles (or families of space launch vehicles) capable of delivering into space any payload designated by the Secretary of Defense or the Director of National Intelligence as a national security payload;
>
> (2) a robust space launch infrastructure and industrial base; and
>
> (3) the availability of rapid, responsive, and reliable space launches for national security space programs to--
>
> (A) improve the responsiveness and flexibility of a national security space system;
>
> (B) lower the costs of launching a national security space system; and
>
> (C) maintain risks of mission success at acceptable levels.

60. In the National Defense Authorization Act of 2013, Congress directed the Department of Defense to "maximize the use of the capacity of the space transportation infrastructure of the [Department of Defense] by the private sector of the United States" and to "encourage commercial space activities by enabling investment . . . in the space infrastructure of the [Department of Defense]." *Id.* § 2276(a). In the National Defense Authorization Act of 2024, Congress again emphasized the central role of the private sector in space-related defense activities. For example, Congress enabled the "Secretary of a military department" authority to "provide to [] commercial entit[ies] supplies, services, [and] equipment" as needed to increase commercial space launch capacity. Pub. Law 118-31 § 1603(b).

61. Consistent with these statutory directives, the Department of Defense has for many years contracted with commercial operators like SpaceX to carry out national space program activities, and now relies exclusively on commercial launch services. The Department of Defense has made clear that advancing the country's national defense and security goals requires "increase[d] collaboration with the private sector in priority areas, especially with the commercial space industry, leveraging its technological advancements and entrepreneurial spirit to enable new capabilities." Department of Defense, *2022 National Defense Strategy* at 19-20.[3] The Department of Defense has also said it "will benefit by making commercial solutions integral—and not just supplementary—to national security space objectives." Department of Defense, *Commercial Space Integration Strategy* (2024) at 1.[4]

C. Commercial space launch operations at Vandenberg Space Force Base

62. The military has owned and operated the Base for almost 85 years. In ceding the land on which the Base is located to the U.S. Government, California

[3] *Available at* https://media.defense.gov/2022/Oct/27/2003103845/-1/-1/1/2022-NATIONAL-DEFENSE-STRATEGY-NPR-MDR.PDF.

[4] *Available at* https://media.defense.gov/2024/Apr/02/2003427610/-1/-1/1/2024-DOD-COMMERCIAL-SPACE-INTEGRATION-STRATEGY.PDF.

never reserved authority to apply its state laws to the land. The Army established the Camp Cooke garrison on the property in 1941 and transferred the site to the Air Force in 1957. Soon after, the Air Force established the Base as a missile and space launch facility and launched the first missile from there in 1958.

63. In 1996, the Base became the site of the world's first spaceport supporting space launches by commercial operators. Today, this Base is the world's second busiest launch facility. The Base is also the West Coast's only federal launch facility, providing critical capacity for the nation's space program.

64. Space launches have occurred at the Base for many years with no significant effects on coastal resources either on or around the Base. For example, wildlife monitoring has shown no significant effects to coastal wildlife, including sea birds and pinnipeds. In its 2023 Supplemental Environmental Assessment (Supplemental EA) for Falcon 9 launch activities at the Base, the Air Force explained that "[Western Snowy Plover] monitoring . . . over the past two decades . . . has routinely demonstrated that [] behavior is not adversely affected by launch noise or vibrations." Supplemental EA at 4-25.[5] The Air Force has also "determined there are generally no substantial behavioral disruptions or anything more than temporary [e]ffects" from past launches on pinnipeds and other species. *Id.* at 4-38.

65. Since 1979, public access to beaches in the vicinity of the Base have been subject to an access restriction agreement between the Air Force, the State of California, and Santa Barbara County. The agreement provides that the Air Force will notify the County prior to a launch that an evacuation is necessary and empower Santa Barbara County to evacuate members of the public and enforce temporary access restrictions. The State and County have extended this agreement on multiple

[5] *Available at* https://www.vandenberg.spaceforce.mil/Portals/18/documents/Environmental/EIAP-2023-05-1_SEA_SpaceX_Falcon9CadenceIncrease.pdf.

occasions.

66. For decades, the Air Force has treated commercial space operations by SpaceX and other commercial operators at the Base as "federal agency activity" under the CZMA and determined that launches are consistent to the maximum extent practicable with the California coastal management program. For example, in 1998, the Air Force made a consistency determination for the Evolved Expendable Launch Vehicle commercial launch program at the Base (CD-049-98). In 2003 and 2005, the Air Force made negative determinations regarding SpaceX's Falcon program (ND-103-03 and ND-088-05). *See* Exs. A & B. In 2020, the Air Force made a negative determination for the United Launch Alliance's Vulcan Centaur launch program (ND-0027-20). In 2021, the Air Force made a negative determination for ABL Space Systems' RS1 launch program (ND-0020-21) and a consistency determination for Blue Origin's Orbital Launch Site (CD-0010-21). And in 2023, the Air Force made a consistency determination for a Phantom Space Corporation launch facility with a launch cadence of 60 flights, higher than the cadence the Air Force is seeking for SpaceX (CD-0010-22). The Commission has never required any other commercial space launch operator to obtain a CDP.

67. The Department of Defense has repeatedly made clear to the Commission that activities on military installations in California, including the Base, are federal agency activities, not federally permitted activity subject to state permit requirements. For example, on October 25, 2022, "on behalf of the military Services in California, and consistent with previous communications on this uniquely federal issue," the Navy rejected the Commission's "request[] that the Coastal Development Permit (CDP) process be utilized where a private entity is involved in the military's federal activity." The Navy explained:

> Any federal activity, lease or project undertaken on a military installation, is by definition not in the coastal zone. All activities taking place on federally owned [Department of Defense] land, including those that utilize

> private entities, are done so in a manner exercising our statutory authorities. Federal activities include a range of activities where a Federal agency makes a proposal for action initiating an activity or series of activities.

Ex. A. In a November 2, 2022 letter (Ex. B), the Air Force similarly found that another commercial space operator's proposed launch program at the Base "is a federal activity being conducted outside the coastal zone." The Air Force rejected the Commission's request that it withdraw a previously submitted consistency determination for this activity and apply for a CDP. The Air Force emphasized it "had fulfilled its statutory commercial space launch responsibilities on [the Base] for decades, during which the Coastal Commission has never asserted that any commercial space project was a private commercial development requiring a CDP."

68. The Commission, in turn, has reviewed the Air Force's negative determinations and consistency determinations for commercial space operations at the Base as federal agency activity and concurred. *See, e.g.*, ND-103-03 Concurrence (addressing the Base's Falcon launch program) (Ex. C); ND-088-05 Concurrence (addressing modifications to the Falcon program) (Ex. D); ND-0027-20 Concurrence (addressing the Base's Vulcan Centaur Program);[6] ND-0020-21 Concurrence (addressing the Base's ABL Space Systems Company's RS1 vehicle launches).[7]

69. Consistent with the Air Force's longstanding positions that launches from the Base are federal agency activities subject to state consistency review under Section 307(c)(1) of the CZMA, launches are not listed as federally permitted activities in the California coastal management program.

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6 *Available at* https://documents.coastal.ca.gov/reports/2020/11/F14/F14-11-2020.pdf at 2-4.

7 *Available at* https://documents.coastal.ca.gov/reports/2021/10/F10/F10-10-2021.pdf at 11-12.

70. No space launch operator has ever applied for or obtained a CDP.

D. The Falcon 9 launch program

71. SpaceX currently leases land from the Air Force at the Base that is used to support the Falcon 9 launch program at the Base. Under the lease, the Air Force retains ultimate authority over the use of the land and launch facilities. For example, the Air Force "reserves the right to use or share" the leased facilities "as necessary to support its own programs" and "to grant shared use . . . to other services within the Department of Defense, federal agencies, state agencies, and commercial space launch operators in the furtherance of the purposes of" the Commercial Space Launch Act. The federal government also retains authority to enter the leased facilities "without escort, at all times for any purposes not inconsistent with Licensee's quiet use and enjoyment of them."

72. Consistent with its longstanding treatment of commercial space operations at the Base as federal agency activity, the Air Force made negative determinations regarding the Base's Falcon 9 launch program in 2010 (ND-055-10), 2014 (ND-0035-14), 2015 (ND-0027-15), and, as further explained below, 2023 (ND-0009-23). The Commission concurred with each determination. *See* ND-055-10 Concurrence, Ex. E at 2; ND-0035-14 Concurrence, Ex. F at 3; ND-0027-15 Concurrence, Ex. G at 3; ND-0009-23 Concurrence, Ex. H at 5.

73. These determinations were supported by robust National Environmental Policy Act review by the Air Force, interagency consultation under Section 7 of the Endangered Species Act with the U.S. Fish and Wildlife Service and National Marine Fisheries Service, and Commercial Space Launch Act review by the Federal Aviation Administration. The Air Force prepared environmental assessments (EAs) in 2011, 2016, and 2018, concluding that Falcon 9 program

activities would not significantly impact coastal resources.[8]

74. The Air Force also monitors and mitigates environmental effects of the Base's launch programs. In collaboration with Space Launch Delta 30 of the Space Force, SpaceX monitors protected species, including the western snowy plover, California least tern, California red-legged frog, southern sea otter, and pinnipeds. SpaceX also assists in sonic boom monitoring at multiple sites even though sonic booms from Falcon 9 launches do not occur at levels that are harmful to humans or wildlife. The Space Force has also collaborated with Santa Barbara County on a highly successful strategy to minimize beach access restrictions that the Space Force sometimes implements to reduce risk to the public.

E. The Commission's review of Falcon 9 launch cadence increases

75. In 2023, the Air Force evaluated increasing the launch cadence of Falcon 9 rockets at the Base to up to 36 launches annually. As with prior Falcon 9 program activities, the proposed cadence increase underwent environmental and safety review by multiple federal agencies. The Air Force prepared a Supplemental EA in accordance with the National Environmental Policy Act and concluded the cadence increase would not significantly affect coastal resources. Supplemental EA at 4-50. The Air Force and SpaceX also committed to measures to mitigate coastal effects, including minimizing the need for temporary access restrictions, compensation for any unrecovered marine debris, and ongoing biological monitoring. Supplemental EA at 4-49 to 4-50.

76. After thorough review, the Air Force also made a negative determination (ND-0009-23) under the CZMA. The Commission concurred on May 5, 2023, stating: "With these commitments [to minimize coastal impacts],

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[8] 2011 EA, *available at* https://apps.dtic.mil/sti/pdfs/ADA612280.pdf; 2016 EA, *available at* https://www.vandenberg.spaceforce.mil/Portals/18/documents/Environmental/EIAP-2016-04-1_EA_Falcon9_Boost-back.pdf; 2018 Supplemental EA, *available at* https://www.vandenberg.spaceforce.mil/Portals/18/documents/Environmental/EIAP-2018-01-31_SEA_Falcon9_Launch-Boost-back.pdf.

Commission staff agrees that the proposed increase to 36 Falcon 9 launches per year at [the Base] and designation of a new offshore landing area will not adversely affect coastal zone resources. The proposed launch activities are similar to those concurred with by the Commission in CD-049-98 and by the Executive Director in ND-0027-15. We therefore concur with your negative determination made pursuant to 15 CFR 930.35 of the NOAA implementing regulations." ND-0009-23 Concurrence, Ex. H at 5.

77. Just a few months later, however, the Commission reversed course, voting on December 15, 2023, to renege on its concurrence with the Air Force's 2023 negative determination. The Commission also asked the Air Force to provide more information about the 36-launch cadence increase and potential coastal effects.

78. The Commission sent the Space Force a "remedial action letter" on February 16, 2024, asking the Space Force to submit a consistency determination for the 36-launch cadence increase and "limit SpaceX launch azimuths and scheduling in order to avoid further adverse impacts to public coastal access and recreation . . . ." Ex. I at 3.

79. Notwithstanding that the Commission had already previously concurred in the negative determination, the Air Force provided the Commission the requested information and agreed to submit a consistency determination (CD-0003-24) for the 36-launch cadence increase. On March 7, 2024, the Air Force provided another consistency determination, which included additional mitigation measures addressing the Commission's concerns and again found the 36-launch cadence increase to be consistent with the California coastal management program. Ex. J.

80. On March 28, 2024, Commission staff released a detailed staff report recommending the Commission concur with the Air Force's March 2024

consistency determination.[9] The report discussed the Air Force's commitment to implement measures to further address the Commission's concerns with biological resources, marine debris, and fisheries impacts. While the report recommended concurrence, it disputed the Air Force's longstanding policy and the Commission's longstanding practice of recognizing and reviewing commercial launch operations at the Base as federal agency activity. Instead, the report said, "SpaceX's space launch activities are not a government program and are carried out solely by a private entity" and that the program "would be operated by a private company to serve its business objectives and would only occasionally launch materials at the behest of" the Air Force. March 2024 Report at 7. While Commission staff "agreed to bring forward the proposed project for the Commission's consideration as a consistency determination," they warned that "future projects will continue to be considered on a case-by-case basis and different review approaches will be used when appropriate." *Id.*

81. At its April 10, 2024 meeting, the Commission rejected its staff's recommendation and voted not to concur at that time. The Commission again questioned the Air Force's longstanding policy of treating private launches at the Base as federal agency activity. Kristina Kunkel, speaking on behalf of the State Lands Commission, said: "I just don't think that SpaceX should be able to skirt the requirements for a CDP when there's clear intent to conduct primarily for-profit business activity and not federal activity." Commissioner Notthoff suggested "[m]aybe there's some other launch sites that SpaceX could use to spread [the impact] out over the globe." The Commission decided to again revisit review of the Air Force's consistency determination for the 36-launch cadence increase at a subsequent hearing.

[9] *Available at* https://documents.coastal.ca.gov/reports/2024/4/w13a/w13a-4-2024-report.pdf.

82. On May 10, 2024, to address the additional concerns raised at the April 10 meeting, the Air Force provided a briefing on operations at the Base; it then submitted additional information about the Falcon 9 launch operations at the Base.

83. In a May 30, 2024, report,[10] Commission staff reversed its prior recommendation that the Commission concur with the Air Force's consistency determination, instead recommending that the Commission object. The report again disputed the Air Force's position that the Falcon 9 program at the Base is federal agency activity. The report stated that "Space Force must demonstrate that SpaceX is performing all its launch activities on behalf of the Space Force and that Space Force is responsible and accepts liability for all of SpaceX's launch activities" to show that the Falcon 9 program is federal agency activity. May 2024 Report at 7.

84. On June 7, 2024, the Air Force sent a letter responding to the Commission's report. Ex. K. The Air Force explained that the Falcon 9 program would be carried out "consistent to the maximum extent practicable with the enforceable policies" of the California coastal management program and that "federal activities, including commercial space activities on [the Base], are not subject to the California Coastal Zone Management Program's (CZMP) Coastal Development Permit (CDP)." The Air Force reiterated that "[l]aunches on [the Base] constitute 'federal agency actions' and fall within the federal [consistency determination] process," and that "[t]his position has been articulated to the [Commission] throughout this [consistency review] process" and in prior correspondences.

85. The Commission postponed a vote on the consistency determination at its June 2024 meeting. The Air Force then continued to meet and work with the Commission to address the Commission's concerns.

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10 *Available at* https://documents.coastal.ca.gov/reports/2024/6/w10a/w10a-6-2024-report.pdf.

86. On July 25, 2024, Commission staff issued a third report on the Air Force's consistency determination for the 36-launch cadence increase, this time recommending conditional concurrence.[11] Specifically, the Report recommended imposing the following conditions of concurrence, which include measures related to effects outside of the coastal zone: (1) an enhanced on-Base biological monitoring program, (2) off-Base sonic boom minimization measures, (3) off-Base acoustic and biological monitoring, (4) a lighting management plan, (5) enhanced coastal access and recreation, (6) marine debris payments, and (7) a commercial and recreational fishing coordination plan. This new report again took the position that Falcon 9 launches are not federal agency activity and require a CDP. July 2024 Report at 12.

87. The Air Force worked with the Commission and agreed to conditions 4-7 but not the other conditions, as explained in an August 6, 2024 letter to the Commission. Ex. L.

88. At its August 8, 2024, meeting, the Commission adopted the Report in full and conditionally concurred in the Air Force's consistency determination. During the hearing, the Commission raised numerous concerns unrelated to potential effects on coastal resources. For example, Commissioner Wilson said:

> And we see, you know, actors in that space both engaging in foreign military activities, engaging in misinformation, dabbling in misinformation within the social media spheres in which they're in and those sorts of things, which makes me question our ability to manage the benevolency of this private industry under this umbrella of the public good, which our military is supposed to be part of our public good and national security as well.

Commissioner Cummings also asked national security questions unrelated to potential effects on coastal resources based on false, debunked conspiracy theories:

> [W]hat we saw about a year ago was that Starlink was shut down when one of our allies was trying to utilize that

[11] *Available at* https://documents.coastal.ca.gov/reports/2024/8/Th9c/Th9c-8-2024-report.pdf.

> technology to attack one of our adversaries. When the Ukraine was trying to conduct a drone attack on Russia, Starlink shut down that technology and prevented them from utilizing that technology for an attack that they were trying to do to defend their nation against a foreign invader, who we've identified as being one of our enemies. So the notion that what we're doing and the approval of these rocket launches is for national defense, you know, it's concerning to me when some of our allies are not being allowed to utilize the technology that's being deployed in these launches when they need it most.

89. After the hearing, the Air Force continued to work with the Commission to resolve its concerns. On September 13, 2024, the Air Force responded to the Commission with proposed measures responsive to the Commission's first three conditions of its concurrence. Ex. M. On September 16, 2024, the Commission responded that these measures were inadequate. Ex. N. The Air Force ultimately capitulated to the Commission's conditions, including additional monitoring that the Air Force and federal wildlife agencies found not to be needed and which will cost commercial space operators, including SpaceX, and the Air Force millions of dollars a year to implement.

F. The Commission's continued demands that SpaceX obtain a CDP

90. Since reopening its consistency determination on the 36-launch increase in December 2023, the Commission has repeatedly asserted that the Base's Falcon 9 launch program is not federal agency activity and demanded that SpaceX obtain a CDP to conduct Falcon launches.

91. On a September 13, 2024 call with SpaceX and in several emails, Defendant Cassidy Teufel demanded on behalf of the Commission that SpaceX obtain a CDP to conduct future launches. He threatened enforcement against the Falcon 9 launch program and further stated that the Commission will not agree to cadence increases if SpaceX does not obtain a CDP. SpaceX responded, reiterating its position, shared by the Air Force, that the Base's commercial space launch programs are not subject to the Coastal Act's CDP requirement.

92. On September 27, 2024, the Commission again stated its position in a staff report evaluating a consistency determination that the Air Force prepared for a proposed cadence increase to 50 launches annually (CD-0007-24).[12] The report states the Commission's position that Falcon 9 launches are federally permitted activities requiring a CDP, and says the Commission's "expectation [is] that SpaceX will be required to seek the Commission's authorization through submittal of a consistency certification and/or coastal development permit application." Sept. 2024 Report at 8. The report claims that "the primary purpose of the proposed SpaceX launch activities is to further expand and support SpaceX's commercial satellite internet and telecommunications network" and that SpaceX only "periodically launches satellites and payloads under contract for a variety of federal government agencies." *Id.* at 2.

93. The Commission also sent SpaceX a letter on September 27, 2024, stating that SpaceX must obtain a CDP, including an "after-the-fact" CDP for past launches, indicating that the Commission believes past launches violated the Coastal Act's CDP requirement. Ex. O.

94. At its October 10, 2024 meeting,[13] the Commission discussed SpaceX's proposed cadence increase to 50 launches and voted to object to its staff's recommendation to concur with the Air Force's consistency determination. The Commission continued to claim that Falcon 9 launches are federally permitted activity requiring a CDP. Instead of explaining the basis of the staff report's recommendation that the Commission concur in the Air Force's consistency determination, Commission staff stated that the Base's Falcon 9 launch program is

[12] The Staff Report is available at https://documents.coastal.ca.gov/reports/2024/10/th9a/th9a-10-2024-report.pdf. The July 2024 CD for the cadence increase is attached as Exhibit O.

[13] A recording of the Commission's October 10, 2024 meeting is available at https://cal-span.org/meeting/ccc_20241010/.

federally permitted activity and not federal agency activity. The Commission made clear that it was determined to force SpaceX to apply for a CDP regardless of whether it concurred in the Air Force's consistency determination. For example, Commission Chair Hart stated: "It is essential from my perspective that SpaceX submit a CDP," adding, "[t]here is no other way forward in my opinion." She said she disagreed with the Air Force that commercial space launches are federal agency activity outside the Commission's permitting jurisdiction, noting that "we're going to hit a wall here." Other Commissioners further inquired into enforcing the coastal development permit requirement against SpaceX.

95. The Commission also made clear that its objection was rooted in animosity toward SpaceX and the political beliefs of its owner Elon Musk, not concern for the coastal zone. After talking at length about concerns with changes in Department of Defense leadership following the November 2024 election, Commission Chair Hart said explicitly: "The concern is with SpaceX increasing its launches, not with the other companies increasing their launches." She explained, "we're dealing with a company . . . the head of which has aggressively injected himself into the Presidential race and made it clear what his point of view is." Other Commissioners similarly made clear their decision was based on political disagreements with Mr. Musk. Commissioner Newsom, for instance, said that "Elon Musk is hopping about the country, spewing and tweeting political falsehoods and attacking FEMA while claiming his desire to help the hurricane victims with free Starlink access to the internet." Commissioners Aguirre and Escalante voiced similar concerns regarding the political uses of Starlink. As these statements show, the impact of the proposed launch cadence increase on the coastal region was the last topic on the Commissioners' minds at the October 2024 meeting.

96. The Commissioners also raised other concerns wholly unrelated to coastal effects. Commissioner Newsom, for example, spoke at length about SpaceX's employment practices, citing reports of unlawful retaliation and unsafe

working conditions. These same "concerns" regarding SpaceX's employment practices were later echoed by Commissioners Cummings and Aguirre. Cummings even admitted SpaceX's labor practices fall outside the Commission's purview, stating that "[t]here's certain things that we would love to see *that are outside of our purview*" before continuing to discuss unnamed reports regarding SpaceX's supposed labor practices.

97. The Commissioners also repeatedly cited debunked conspiracy theories regarding the use of SpaceX technologies by foreign governments and concerns about Mr. Musk's motivations for seeking federal contracts. Commissioner Wilson wanted to "acknowledge" that the outcome of the Starlink program will be Mr. Musk having control over "one of the most extensive communications networks on the planet," and further stated that "just last week" Mr. Musk was "speaking about political retribution on a national stage." Commissioner Cummings later raised similar concerns about Mr. Musk's perceived unilateral control over the Starlink system. Cummings stated, "I do share some concerns . . . Commissioner Wilson brought up . . . . [L]ast year we did see the owner of Starlink shut down Starlink when one of our allies was going to attack one of our adversaries. And so while . . . we are all trying to operate in this apolitical space, we do know that the person who controls these companies has enough power to not work in the best interest, when they feel like it, of our allies." Comments from other Commissioners similarly show that their decision would be based on flawed and inexpert national security concerns rather than concerns within the scope of their state mandate regarding preservation of the coastal zone.

98. No Commissioner, nor any Commission staff, objected to any of these statements. No one pointed out their immateriality to the issues before the Commission. No one stated or argued that animus toward Mr. Musk and/or SpaceX had no place in the Commission's deliberation, should not affect the Commission's decision in any way, and/or should be disregarded completely.

99. Following these many attacks against Mr. Musk and SpaceX for political views and business practices unrelated to the Commission's authority, the Commission voted 6-4 against SpaceX increasing its yearly total of Falcon 9 launches from the Base. The majority votes were cast by Commission Chair Hart and Commissioners Newsom, Cummings, Wilson, Aquirre, and Escalante.

VI. CLAIMS

COUNT I: For Declaratory and Injunctive Relief

(Coastal Zone Management Act)

100. Plaintiff incorporates by reference all preceding allegations.

101. The Commission lacks authority for its actions under the CZMA. First, the Falcon 9 launch program is federal agency activity, not federally permitted activity requiring a consistency certification. Second, contrary to the Commission's claims, the Base is not within the "coastal zone" as defined by the CZMA.

102. The CZMA and its implementing regulations distinguish between federal agency activities and federally permitted activities. Distinct requirements and differing degrees of state authority apply to each type of activity under the CZMA. "Federal agency activity" is any function carried out by or on behalf of a federal agency to exercise its statutory responsibilities.

103. It is the Air Force's longstanding position that commercial space launches at the Base, including the Falcon 9 launch program, are federal agency activities under the CZMA. SpaceX agrees that commercial space launches and infrastructure at the Base, including Falcon 9 launch operations, are federal agency activities. For decades, the Commission also agreed and repeatedly concurred in determinations by the Air Force that commercial space launch programs at the Base are federal agency activities that are consistent with the enforceable policies of California's coastal management program.

104. But the Commission is now attempting to regulate the Base's commercial space launches as federally permitted activity and has directed SpaceX

to submit a consistency certification. Contrary to the Commission's position, the Base's Falcon 9 launch program is federal agency activity. Falcon 9 is the most reliable, reusable, economical rocket ever created, and it is the workhorse of the national space program. A robust Falcon 9 launch program at the Base is integral to ensuring "the availability of rapid, responsive, and reliable space launches for national security space programs," as required by Congress. 10 U.S.C. § 2273. As a bipartisan group of fourteen California Members of Congress explained in a comment letter supporting the cadence increase for the Base's Falcon 9 launch program, "[s]pace launches from [the Base] provide a critical national security capability for the U.S. Department of Defense [] and intelligence community." Quoting the 2024 Department of Defense's Commercial Space Integration Strategy, they explained that "integrating commercial launch services into the national security space architecture is 'critical to enhancing U.S. resilience and strengthening deterrence in the 21st century.' Federal law and national policy also provide clear direction on this subject, including in the Commercial Space Launch Act and the National Space Policy." The Air Force similarly explained in its July 2024 consistency determination for the 50-launch cadence increase that a robust commercial space launch program at the Base serves the Air Force and fulfills its statutory responsibilities:

> The Proposed Action [*i.e.*, increased launch capacity at the Base] is needed to meet current and anticipated near-term future U.S. Government launch requirements for national security, space exploration, science, and the Assured Access to Space process of the NSSL program. It is the policy of the U.S. to ensure that the U.S. has the capabilities necessary to launch and insert national security payloads into space whenever needed, as described in 10 U.S.C. § 2773. The Proposed Action is also needed so that SpaceX can continue to implement U.S. Government missions while simultaneously meeting its increasing commercial launch demands.

Ex. P at 2 (CD-0007-24).

105. The Commission also claims that the Base's land on which the Falcon

9 launch program operates is part of the coastal zone. *See* Sept. 2024 Report at 12-13; July 2024 Report at 14-15. This is wrong because the Base is federal land, which the CZMA expressly excludes from constituting part of the coastal zone subject to the CZMA. 16 U.S.C. § 1453(1); 15 C.F.R. § 923.33(a).

106. The Commission's demand that SpaceX submit a consistency certification for the Base's Falcon 9 launch program is also unlawful under the CZMA because the federally approved coastal management program does not list space launches as federally permitted activities that could affect the coastal zone. Nor has NOAA authorized the Commission to review commercial space launches as "unlisted federal license or permit activities." *See* 15 C.F.R. § 930.54. Nor could NOAA because, as explained above, the Base's launch program is federal agency activity under the CZMA.

107. The Commission's attempt to regulate the Base's commercial space launches as federally permitted activity occurring within the coastal zone, and its demand that SpaceX submit a consistency certification, harms SpaceX. The Commission's demand for a consistency certification would trigger a review period by the Commission of six months or more, as opposed to a 90-day period for consistency determinations. The demand would also require SpaceX to incur substantial expense to prepare consistency certifications that are redundant of the Air Force's consistency determinations. The demand would further require the Falcon 9 launch program to be fully consistent with the California coastal management program's enforceable policies instead of consistent to the maximum extent practicable, which is the less demanding consistency standard applicable to federal agency activities. And if the Commission objected, the launch program could proceed only after a successful, formal administrative appeal to NOAA. By contrast, if reviewed as federal agency activity, the launch program can proceed over the Commission's objection given the Air Force's repeated findings that the activity is consistent to the maximum extent practicable with the California coastal

management program's enforceable policies.

108. The Commission's unlawful position that parts of the Base where SpaceX operates are part of the coastal zone also harms SpaceX. Contrary to the Commission's position, the Base is federal land that is not part of the coastal zone, and thus impacts on the Base are not subject to consistency review under the CZMA.

109. Accordingly, the Commission's demand that SpaceX submit a consistency certification for the Base's Falcon 9 launch program should be declared unlawful under the CZMA in the circumstances presented, declared unenforceable against SpaceX, and enjoined. If not declared unlawful and enjoined, the Commission's demands will irreparably harm not only SpaceX but also the important federal interests served by the Base's Falcon 9 launch program.

COUNT II: For Declaratory and Injunctive Relief

(Preemption)

110. Plaintiff incorporates by reference all preceding allegations.

111. Space operations at the Base are federal agency activity overseen by multiple agencies within the Department of Defense. The Commission has always agreed with this position. But now, as explained above, the Commission has done an about-face: starting this year, it has repeatedly sought to regulate the Base's Falcon 9 launch program under the Coastal Act and demanded that SpaceX obtain a CDP under that state law. Both the Air Force and SpaceX have steadfastly disagreed. As the Air Force has repeatedly found, the Base's Falcon 9 launch program is federal agency activity that is fully consistent with the California coastal management program and not subject to the Coastal Act's CDP requirement.

112. SpaceX seeks a declaration pursuant to 28 U.S.C. §§ 2201 and 2202 that the Commission's demand that SpaceX obtain a CDP to conduct Falcon 9 launches at the Base is preempted.

113. The Commission's application of its claimed state law permitting authority to SpaceX and the Falcon 9 launch program at the Base is preempted

because it conflicts with the CZMA and other federal laws in numerous ways.

114. First, the Commission's attempt to regulate effects on the Base's coastal resources is preempted. The CZMA excludes federal land from the coastal zone subject to the Commission's review for consistency with the coastal management program's enforceable policies. The Base is federal land that is excluded from the coastal zone. Contrary to the CZMA, the Commission seeks to apply the coastal management program's policies and CDP requirement to Falcon 9 launch operations and related effects on the Base.

115. Second, the Commission's attempt to regulate and demand a permit for federal agency activity is preempted. The CZMA establishes separate and distinct frameworks for state consistency review of federal agency activities and federally permitted activities. A federal agency can override a state agency's finding that a federal agency activity is inconsistent with the state's coastal management program and proceed with the federal agency activity simply by finding that the activity is consistent to the maximum extent practicable. As explained above, the Base's Falcon 9 launch program is federal agency activity, and the Air Force has issued consistency determinations finding that the launch program is consistent with the state's coastal management program. In conflict with the limited authority the CZMA provides states to review federal agency activity, the Commission unlawfully seeks to require SpaceX to obtain a CDP, prepare a consistency certification, and obtain the Commission's concurrence to conduct launch operations at the Base, irrespective of the Air Force's finding of consistency.

116. Third, the Commission's demands that SpaceX obtain a CDP for the Falcon 9 program and implement additional mitigations to comply with the coastal management program also conflict with the Air Force's specific consistency findings in this case and its authority to proceed over the Commission's objection.

117. Fourth, the Commission's actions are also preempted because they intrude upon national defense and security and because they seek to regulate activity

occurring on a federal enclave, which are fields reserved by Congress for federal regulation. Allowing the Commission to demand a CDP and conduct lengthy review of commercial space launches at a federal military base would hamstring both the national space program and the U.S. commercial space launch operators on which the program relies. Congress clearly never intended such an outcome in passing the Commercial Space Launch Act or directing the Department of Defense, NASA, and other federal agencies to rely on commercial space launch programs at federal launch sites. Rather, Congress made clear that "providing launch services and reentry services by the private sector is consistent with the national security and foreign policy interests of the United States and would be facilitated by stable, minimal, and appropriate regulatory guidelines that are fairly and expeditiously applied." 51 U.S.C. § 50901(a)(6).

118. Accordingly, the Commission's demands that SpaceX obtain a CDP should be declared preempted and unlawful under the circumstances presented, declared unenforceable against SpaceX, and enjoined. If not declared unlawful and enjoined, the Commission's demands will irreparably harm not only SpaceX but also the important federal interests served by the Base's Falcon 9 launch program.

COUNT III: For Declaratory and Injunctive Relief

(Preemption—Federal Enclave Jurisdiction)

119. Plaintiff incorporates by reference all preceding allegations.

120. The Commission's demand that SpaceX obtain a CDP is also unlawful and preempted or displaced under the federal enclave doctrine, under which the Base is governed exclusively by federal law.

121. The Federal Enclave Clause provides that Congress "shall have power . . . to exercise exclusive Legislation in all Cases whatsoever over such" federal enclave districts "and to exercise like authority over all Places purchased by the Consent of the Legislature of the State in which the Same shall be, for the Erection of Forts, Magazines, Arsenals, Dock-Yards, and other needful Buildings."

U.S. Constitution, art. 1, § 8, cl. 17

122. The Base is a federal enclave. The U.S. Army acquired the pertinent land on the Base in 1941 by cession. In ceding the land, the State did not reserve authority to apply any state laws to the land. *See Taylor*, 78 Cal. App. 4th at 480 (explaining that state law "in effect when the United States Government accepted jurisdiction over [the Base] . . . [provided] blanket consent to federal jurisdiction [and] rendered Vandenberg a federal enclave"). Nor did the federal government provide for application of existing or subsequently enacted state laws to the Base's land at issue, nor has it since.

123. The U.S. military has used the base continuously for military purposes since its acquisition in 1941. It has never abandoned the Base for exclusively civilian or non-federal purposes.

124. The Coastal Act was enacted by the State of California after the state ceded the land on which the Base was built and, therefore, the Coastal Act is not incorporated into the federal law governing the Base.

125. The California state legislative approval of cession of the land lacked any reservation subjecting the land to state regulation of coastal conditions under the Coastal Act.

126. No federal statute gives California the power to impose its state law permitting requirements upon launch activity at the Base or any other activity affecting Falcon 9 launches from the Base.

127. To the contrary, the CZMA and its operative regulations provide that states must exclude from the coastal zone "lands the use of which is by law subject solely to the discretion of . . . the Federal Government," including "lands owned, leased, held in trust or whose use is otherwise by law subject solely to the discretion of the Federal Government, its officers or agents." 16 U.S.C. § 1453(1); 15 C.F.R. § 923.33(a). Even if a federal enclave such as the Base were theoretically subject to federal consistency review by states under the CZMA, at the very most, the CZMA

requires the federal government to consult with pertinent state officials and find that actions are consistent to the maximum extent practicable. Nothing in the CZMA requires the federal government to surrender or limit its exclusive jurisdiction under the Federal Enclave Clause over the Base to state permitting conditions.

128. The Commission's asserted authority under the Coastal Act to demand a CDP for commercial space launches from the Base therefore constitutes an impermissible state regulation of activity on a federal enclave and is prohibited by the federal enclave doctrine.

129. Accordingly, the Commission's demands that SpaceX obtain a CDP should be declared unlawful under the Federal Enclave Clause, declared unenforceable against SpaceX, and enjoined. If not declared unlawful and enjoined, the Commission's demands will irreparably harm not only SpaceX but also the important federal interests served by the Base's Falcon 9 launch program.

COUNT IV: For Declaratory and Injunctive Relief

(California Coastal Act applied on a federal enclave)

130. Plaintiff incorporates by reference all preceding allegations.

131. Even assuming the Commission's asserted authority under the Coastal Act to require SpaceX obtain a CDP is not preempted by federal law and prohibited by the Federal Enclave Clause, because the Base is a federal enclave, the Coastal Act could apply to launches on the Base only if it were deemed to constitute federal law. As such, the Coastal Act would be subject to this Court's federal question jurisdiction under 28 U.S.C. § 1331. And this Court therefore would have authority to determine that the Commission and its officers are violating the Coastal Act.

132. The Commission has asserted that the Coastal Act authorizes it to demand a CDP for commercial space launches occurring on the Base because the Base is part of the coastal zone within the meaning of the Coastal Act. But the Base is located outside the "coastal zone" as defined by the Coastal Act, and thus the Falcon 9 launch program is not subject to the Commission's regulatory authority

even under that law. Cal. Pub. Res. Code § 30008; 15 U.S.C. § 1453(1). The Coastal Act therefore plainly prohibits the Commission from requiring SpaceX to obtain a CDP for the Base's Falcon 9 launch program because the Base is federal land that is outside of the coastal zone and beyond the Commission's coastal development permitting jurisdiction. Cal. Pub. Res. Code § 30604(d); 14 Cal. Code Regs. § 13050.5(b).

133. SpaceX seeks a declaration pursuant to 28 U.S.C. § 2201 that the Commission's demand that SpaceX obtain a CDP for its launch operations at the Base exceeds the Commission's authority and is unlawful under the Coastal Act.

134. Accordingly, the Commission's demands that SpaceX obtain a CDP should be declared unlawful and in excess of its authority under the Coastal Act, declared unenforceable against SpaceX, and enjoined. If not declared unlawful and enjoined, the Commission's demands will irreparably harm not only SpaceX but also the important federal interests served by the Base's Falcon 9 launch program.

COUNT V: For Declaratory and Injunctive Relief

(Retaliation in Violation of U.S. Const. amend. I; 42 U.S.C. § 1983)

135. Plaintiff incorporates by reference all preceding allegations.

136. The Commission's 6-4 vote against SpaceX's plan to increase Falcon 9 launches was substantially based upon the Commissioners' bias and animus against Elon Musk and SpaceX. It therefore constitutes prohibited retaliation in violation of the First Amendment to the U.S. Constitution, applicable against Defendants pursuant to the Fourteenth Amendment and 42 U.S.C. § 1983.

137. To prevail on a claim for First Amendment retaliation, a plaintiff must show that "(1) he was engaged in a constitutionally protected activity, (2) the defendant's actions would chill a person of ordinary firmness from continuing to engage in the protected activity, and (3) the protected activity was a substantial or motivating factor in the defendant's conduct." *Pinard v. Clatskanie Sch. Dist. 6J*, 467 F.3d 755, 770 (9th Cir. 2006). The Commissioners' public statements and

conduct clearly establish each element of this test.

138. Mr. Musk is the largest shareholder of SpaceX. Mr. Musk's public political statements and opinions are protected by the First Amendment.

139. Political speech "occupies the core of the protection afforded by the First Amendment." *McIntyre v. Ohio Elections Comm'n*, 514 U.S. 334, 346 (1995). SpaceX has a right to be free from retaliation for the political views of its owners. *See, e.g.*, *Pagan v. Calderon*, 448 F.3d 16, 29 (1st Cir. 2006) ("When a government actor discriminates against a corporation based on a protected trait of a [shareholder], . . . the corporation . . . has standing to seek redress.").

140. At the October 10, 2024 hearing, and other statements show, the Commission made clear that its actions are motivated by disagreement and concern with Mr. Musk's political expressions.

141. For example, Commission Chair Hart stated that a factor motivating her to vote to not concur with the Air Force's consistency determination and to demand that SpaceX obtain a CDP was that "we're dealing with a company . . . the head of which has aggressively injected himself into the Presidential race and made it clear what his point of view is."

142. Several other Commissioners made similar statements showing that political bias and disagreement with the protected speech of Mr. Musk motivated the Commission's actions adversely affecting SpaceX. These comments were made in the public hearing as explanations for the Commissioners' ultimate decision to vote against their own staff reports and require SpaceX to submit a coastal development permit.

143. SpaceX also has a right under the First Amendment to conduct its business without retaliation by state officials who disagree with or dislike SpaceX's lawful policies and practices. None of the policies and practices unlawfully criticized by the Commission pertain to any matter subject to the Commission's lawful purview. Statements by Commissioners (including those quoted above) also show

that the adverse vote against SpaceX was substantially motivated by this animus and bias against the protected speech of SpaceX and its owner Mr. Musk.

144. The Commission's actions seeking to regulate SpaceX's Falcon 9 launch program at the Base as federally permitted activity and to require SpaceX to obtain a coastal development permit, and its threatened enforcement actions against SpaceX, which are expressly motivated by political disagreement and bias, clearly "would chill or silence a person of ordinary firmness from future First Amendment activities." *Lacey v. Maricopa Cnty.*, 693 F.3d 896, 916 (9th Cir. 2012) (quoting *Crawford-El v. Britton*, 93 F.3d 813, 826 (D.C. Cir. 1996), *vacated on other grounds*, 117 S. Ct. 2451 (1997)). Faced with threatened enforcement and the cost and delay of burdensome permitting and approval processes the Commission unlawfully seeks to impose, "a person of ordinary firmness" would feel constrained from future exercises of the protected activity that prompted the Commission's decision.

145. The Commission's actions, including demanding that SpaceX obtain a CDP and submit an additional consistency certification, are clearly retaliatory. Commissioners Hart, Cummings, Wilson, Newsom, Aguirre, and Escalante all directly cited Mr. Musk's protected speech about his political beliefs as a basis for their votes.

146. It is also clear that, based on this political bias against Mr. Musk, the Commission is treating SpaceX differently than other commercial space launch operators. Commission Chair Hart confirmed that the retaliation was directed at SpaceX. Commission Chair Hart said "[t]he concern is with SpaceX increasing its launches, not with the other companies increasing their launches." Indeed, the Commission recently approved a cadence of 60 launches per year for another operator and did not demand a coastal development permit. This obvious inconsistent treatment demonstrates the Commission's animus and bias against the protected speech of SpaceX and its owner Mr. Musk.

147. Accordingly, the Commission's decision to not concur in the Air Force's consistency determination and demands that SpaceX submit a consistency certification and obtain a CDP should be declared unlawful under the First Amendment of the United States Constitution, unenforceable against SpaceX, and enjoined. If not declared unlawful and enjoined, the Commission's demands will irreparably harm not only SpaceX but also the important federal interests served by the Base's Falcon 9 launch program.

148. If the Commission's activity delays or prohibits even a single SpaceX launch, such a delay or cancelation could cost SpaceX for launch delay, launch replanning, or damages for being unable to timely fulfill commitments to its customers.

COUNT VI: For Declaratory and Injunctive Relief

(Deprivation of Liberty Without Due Process of Law in Violation of U.S. Const. amend. XIV; 42 U.S.C. § 1983)

149. Plaintiff herein incorporates by reference all preceding allegations.

150. Under the Due Process Clause of the Fourteenth Amendment, SpaceX is entitled to have its government permits considered by government officials without taint of political bias and animus.

151. SpaceX has constitutionally protected liberty and property interests to seek all necessary permit and agency approvals and reviews, without political bias or reprisal, to conduct its business of launching Falcon 9 rockets at the Base.

152. The Due Process Clause prevents a government entity from depriving a plaintiff of a protected interest without "a fair trial in a fair tribunal." *In re Murchison*, 349 U.S. 133, 136 (1955); *see also Mathews v. Eldridge*, 424 U.S. 319, 333 (1976) ("The fundamental requirement of due process is the opportunity to be heard 'at a meaningful time and in a meaningful manner.'") (quoting *Armstrong v. Manzo*, 380 U.S. 545, 552 (1965)). This requirement applies not only in courts, but also in administrative proceedings regarding licenses and permitting. *See Stivers v.*

Pierce, 71 F.3d 732, 741 (9th Cir. 1995).

153. To state a procedural due process claim, a plaintiff must allege facts showing: "(1) a liberty or property interest protected by the Constitution; (2) a deprivation of the interest by the government; [and] (3) lack of [adequate] process." *Portman v. Cty. of Santa Clara*, 995 F.2d 898, 904 (9th Cir. 1993). A plaintiff may establish it has been denied its constitutional right to a fair hearing before an impartial tribunal by showing either actual bias on the part of the adjudicator, or the "appearance of partiality that violates due process, even without any showing of actual bias." *Stivers*, 71 F.3d at 741.

154. Here, the statements by Commissioners Hart, Cummings, Wilson, Newsom, Aguirre, and Escalante, and the disparate treatment of SpaceX compared to other commercial space launch operators at the Base all provide clear evidence of bias.

155. SpaceX has a constitutionally protected interest to petition the government, including proceedings before the Commission, without facing bias or reprisal. For the reasons set forth above, it is clear that the October 10, 2024 hearing and other proceedings addressing SpaceX's Falcon 9 launch program at the Base were irremediably tainted by the Commissioners' political bias and animus toward Elon Musk, an owner of SpaceX. The Commission, therefore, interfered with SpaceX's liberty interests protected under the Fourteenth Amendment.

156. SpaceX also has a constitutionally protected property interest in its business of launching Falcon 9 rockets on the Base. Because the Commission has employed a blatantly biased and partisan process for deciding the conditions for SpaceX's business activities on the Base, retaliating against Mr. Musk and SpaceX for their protected speech about political views and employment practices, the Commission has also interfered with SpaceX's property interests protected by the Fourteenth Amendment.

157. Accordingly, the Commission's decision to not concur in the Air

Force's consistency determination and demands that SpaceX submit a consistency certification and obtain a CDP should be declared unlawful under the Fourteenth Amendment of the United States Constitution, unenforceable against SpaceX, and enjoined. If not declared unlawful and enjoined, the Commission's demands will irreparably harm not only SpaceX but also the important federal interests served by the Base's Falcon 9 launch program.

VII. REQUEST FOR RELIEF

In light of the foregoing, Plaintiff respectfully requests that the Court grant the following relief:

A. Declare that SpaceX's Falcon 9 launch program at the Base is "federal agency activity" under the CZMA and does not require a consistency certification;

B. Enjoin the Commission from regulating the Falcon 9 launch program at the Base as "federally permitted activity" under the CZMA;

C. Declare that the Commission lacks authority to require a CDP for the Base's Falcon 9 launch program operated by SpaceX;

D. Declare that the Commission's decision to not concur in the Air Force's consistency determination and to demand that SpaceX submit a consistency certification and obtain a CDP violate the First and Fourteenth Amendment of the United States Constitution and are unenforceable against SpaceX;

E. Enjoin the Commission from enforcing the Coastal Act and its CDP requirement against SpaceX in connection with the Falcon 9 launch program at the Base;

F. Award SpaceX its attorney's fees and costs under 28 U.S.C. § 1988 and other applicable law; and

G. Grant such other relief to which Plaintiff is justly entitled.

Dated: October 15, 2024

VENABLE LLP

/s/ Tyler Welti

By: Tyler G. Welti
Colin B. Vandell
Mitchell Y. Mirviss (pro hac vice forthcoming)

Attorneys for Plaintiff, SPACE EXPLORATION TECHNOLOGIES CORP.

Exhibit A

DEPARTMENT OF THE NAVY
COMMANDER NAVY REGION SOUTHWEST
750 PACIFIC HIGHWAY
SAN DIEGO CA 92132-0058

IN REPLY REFER TO:

5090
Ser N40
October 25, 2022

John Ainsworth
Executive Director
California Coastal Commission
455 Market Street, Suite 300
San Francisco, California 94105-2219

Dear Mr. Ainsworth,

SUBJECT: DEPARTMENT OF DEFENSE POSITION ON REQUESTS FOR COASTAL DEVELOPMENT PERMITS ON FEDERAL PROPERTY IN CALIFORNIA

On behalf of the military Services in California, and consistent with previous communications on this uniquely federal issue, this letter serves as notice that the Department of Defense (DoD) will undertake its federal actions in a manner consistent to the maximum extent practicable with the enforceable policies of California's approved coastal zone management programs through the federal consistency process under the Coastal Zone Management Act (CZMA).

Recently, the DoD has been in receipt of multiple communications from the California Coastal Commission (CCC) requesting that the Coastal Development Permit (CDP) process be utilized where a private entity is involved in the military's federal activity.

Federal activities include "any functions performed by or on behalf of a Federal agency in the exercise of its statutory responsibilities." 15 CFR 930.31(a). Furthermore, under the CZMA (16 USCS § 1453(1)), "lands the use of which is by law subject solely to the discretion of or which is held in trust by the Federal Government, its officers or agents" are excluded from the coastal zone.

The question of whether "solely to the discretion of or which is held in trust by the Federal Government" includes the actions of private entities at the direction of the Federal government, was the subject of litigation in *Manchester Pac. Gateway LLC v. Cal. Coastal Comm'n (2008)*. In this case, the Navy had leased the Navy Broadway Complex (NBC) to a private developer in return for a new Navy headquarters building on the property. The court rejected the CCC's argument that the involvement of a private entity negated the Federal government's sole discretion under the statute. Specifically, the California 9th Circuit Court held that:

> "(1) the focus of the statute is on the federal use of federal lands, and not the use of private parties to accomplish federal objectives and (2) the Federal Government, through Congressional and agency action, acted in its sole discretion by legislative mandate and agency action to define the use of the NBC and to permit the Secretary of the Navy to jointly develop the NBC in conjunction with a private developer."

5090
Ser N40
October 25th, 2022

CDPs are only required for development in the coastal zone as per California Public Resources Code 30600. Any federal activity, lease or project undertaken on a military installation, is by definition not in the coastal zone. All activities taking place on federally owned DoD land, including those that utilize private entities, are done so in a manner exercising our statutory responsibilities. Federal activities include a range of activities where a Federal agency makes a proposal for action initiating an activity or series of activities when coastal effects are reasonably foreseeable. 15 CR 930.31(a). Assuming arguendo that a particular activity did not satisfy the definition of Federal activity in 15 CFR 930.31(a), as long as the DoD is not issuing a federal license or permit to an applicant under subpart D and E or granting federal assistance under subpart F, the federal activity residual category would apply. 15 CFR 930.31(c). The Federal consistency process would still be the appropriate avenue.

We thank you for your partnership with the military in California and look forward to continuing to work with you and your staff on DoD activities through the Federal Consistency process. Our point of contact on this issue is Kathryn Ostapuk, who can be reached at kathryn.g.ostapuk.civ@us.navy.mil or 619-933-2561.

Sincerely,

J. C. GOLUMBFSKIE-JONES
Deputy Regional Environmental Coordinator
By Direction
of the Commander

Copy to: Cassidy Teufel, Federal Consistency Manager, CCC
Kate Hucklebridge, Senior Deputy Director, CCC
Kerry Kehoe, Federal Consistency Specialist, Office for Coastal Management

Exhibit B

DEPARTMENT OF THE AIR FORCE
UNITED STATES SPACE FORCE
SPACE LAUNCH DELTA 30

2 NOV 22

Colonel Robert A. Long, USSF
Commander
Space Launch Delta 30
747 Nebraska Ave, Ste A302
Vandenberg SFB CA 93437-6261

Mr. Cassidy Teufel
Manager, Federal Consistency Division
California Coastal Commission
455 Market Street, Suite 300
San Francisco, California 94105-2219

Dear Mr. Teufel

Space Launch Delta (SLD) 30, 30 CES/CEI, received your response to the request for withdrawal of Consistency Determination No. CD-0010-21, dated August 31, 2022. In it, you stated that the Blue Origin (BO) project is considered to solely constitute private commercial development and requested that SLD 30 withdraw our Consistency Determination (CD) and direct BO to submit a Coastal Development Permit (CDP) request. In accordance with the October 25, 2022, letter from the DoD Regional Environmental Coordinator for Region 9 and for the reasons stated below, SLD 30 disagrees with the project characterization in your request. Therefore, SLD 30 will not withdraw our CD or direct BO to request a CDP.

Under the Coastal Zone Management Act (16 USCS § 1453(1)), "lands the use of which is by law subject solely to the discretion of or which is held in trust by the Federal Government, its officers or agents" are excluded from the coastal zone. The project is located on Vandenberg Space Force Base (VSFB). Thus, the site is not in the coastal zone. CDPs are only required for development in the coastal zone as per California Public Resources Code 30600. Because the project is not in the coastal zone, no CDP is required.

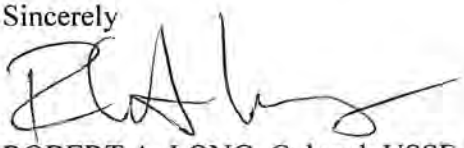
Federal activities include "any functions performed by or on behalf of a Federal agency in the exercise of its statutory responsibilities." 15 CFR 930.31(a). Since 1984, we have encouraged and supported commercial space launches and entities, as directed by Congress through statutes, rules, and policy: Commercial Space Launch Act (CSLA) (1984); DoD Directive 3230.3, DoD Support for Commercial Space Launch Activities (1986); Title 51 of the United States Code (U.S.C.), National and Commercial Space Programs (codified existing statutes, e.g., the CSLA and Title 15, Commercial Space Competitiveness) (2010); and 10 U.S.C. § 2276, Commercial space launch cooperation (2013). Congress, through 10 U.S.C. § 2276, authorized the Secretary of Defense to encourage commercial space activities by enabling domestic corporation investment in DoD space transportation infrastructure. In 10 U.S.C § 2276, Congress also authorized the DoD to maximize private entities using DoD space

transportation infrastructure capacity. SLD 30 has fulfilled its statutory commercial space launch responsibilities on VSFB for decades, during which the Coastal Commission has never asserted that any commercial space project was a private commercial development requiring a CDP. At VSFB, federal government payloads are launched by commercial space entities. BO's operations will include launches on behalf of the federal government. Thus, BO's project is a federal activity being performed on behalf of a federal agency in the exercise of its statutory responsibility. See 15 CFR 930.31(a).

Because BO's Space Launch Complex 9 construction and operation is a federal activity being conducted outside of the coastal zone, we are not withdrawing our previously submitted CD. For that CD, we look forward to your immediate review and approval, or working with you to ensure that the project will be undertaken in a manner consistent to the maximum extent practicable with the enforceable policies of California's approved coastal zone management programs.

If you have any questions or concerns, please contact Ms. Bea Kephart, (805) 605-7924, beatrice.kephart@spaceforce.mil .

Sincerely



ROBERT A. LONG, Colonel, USSF
Commander

Cc:
Maj Erik T. Jader, USAF HAF AFLOA/AF/JAOE-WR
Maj Katelyn M. Bries, USAF HAF AF/JAOE-FSC (USSF)
Mr. Brett Downey, USAF HAF AF/JAOE-FSC
Dr. David C. Bell, USAF AFMC AFCEC/CZPW
Mr. J. C. Golumbfskie-Jones, NRSW

Exhibit C

STATE OF CALIFORNIA – THE RESOURCES AGENCY ARNOLD SCHWARZENEGGER, GOVERNOR

CALIFORNIA COASTAL COMMISSION
45 FREMONT, SUITE 2000
SAN FRANCISCO, CA 94105- 2219
VOICE AND TDD (415) 904- 5200
FAX (415) 904- 5400

December 17, 2003

Denise R. Caron
Chief, Conservation
Environmental Flight
30th Space Wing
U.S. Air Force
30 CES/CEVP
806 13th Street, Suite 116
Vandenberg AFB, CA 93437-5242

Subject: Negative Determination ND-103-03, Falcon Launch Vehicle Program, Vandenberg AFB, Santa Barbara County.

Dear Ms. Caron:

The Coastal Commission staff has reviewed the above-referenced negative determination for the Falcon Launch Vehicle program at Space Launch Complex-3W (SLC-3W) on Vandenberg Air Force Base (VAFB). The proposed program entails a maximum of three Falcon launch missions per year to place commercial and research payloads into earth orbit. The Falcon is a 68-foot-long, two-stage launch vehicle propelled by liquid fuels (the first stage would be recovered approximately 500 miles downrange and 300 miles west of Baja California). The Falcon is one-half the size of the Air Force's Atlas II launch vehicle, which was launched from SLC-3W and 3E through 1998. Noise levels from the proposed Falcon launches will be significantly less than those from previous Atlas II launches.

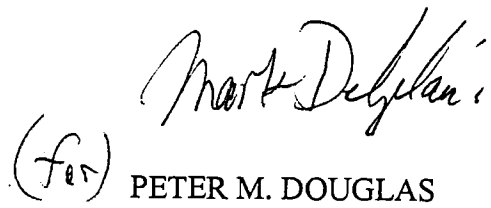
To support the launch program, the Air Force proposes to refurbish the decommissioned SLC-3W facility, including structural improvements, propellant tank installation, utility re-installation, entrance road re-paving, launch water retention basin resurfacing, and installation of security measures. All proposed modifications would occur within the existing and previously-disturbed area of SLC-3W. Construction work would last three to five months and the initial launch is scheduled for mid to late 2004.

The Commission previously concurred with a consistency determination (CD-049-98) for the Atlas V - Evolved Expendable Launch Vehicle program at SLC-3W. That concurrence was based in part on the finding that the proposed launching of Atlas V vehicles was similar to other launch programs on south Vandenberg AFB previously concurred with by the Commission, and that those programs had a monitoring record of not adversely affecting coastal resources, including threatened or endangered species and public habitat and recreation. The U.S. Fish and Wildlife Service, in an October 1, 2003, letter to the Air Force, stated that the proposed Falcon launch program at SLC-3W is not likely to affect these species or their critical habitat in a

manner or to an extent not already considered in the Service's 1999 biological opinion for the Atlas II launch program at the adjacent SLC-3E. The Service states that it reached this conclusion based on its review of the proposed Falcon launch program, a comparison between the Falcon and the existing Atlas II and Titan launch programs, the results of previous monitoring, and the Air Force's commitment to accomplish the same monitoring for the Falcon program that is described in the 1999 biological opinion for the Atlas II program.

After reviewing the accompanying Draft Environmental Assessment for the proposed Falcon launch program at Vandenberg AFB SLC-3W, the Commission staff agrees that the program will not generate new or additional adverse impacts on coastal resources not previously examined by the Commission in its concurrence with consistency determination CD-049-98 for launch activities at the adjacent SLC-3E. Under the federal consistency regulations, a negative determination can be submitted for an activity "which is the same as or similar to activities for which consistency determinations have been prepared in the past." We therefore **concur** with your negative determination made pursuant to 15 CFR Section 930.35 of the NOAA implementing regulations. Please contact Larry Simon at (415) 904-5288 should you have any questions regarding this matter.

Sincerely,



(for) PETER M. DOUGLAS
Executive Director

cc: South Central Coast District Office
California Department of Water Resources
Governor's Washington, D.C., Office

Exhibit D

STATE OF CALIFORNIA—THE RESOURCES AGENCY ARNOLD SCHWARZENEGGER, *GOVERNOR*

CALIFORNIA COASTAL COMMISSION
45 FREMONT, SUITE 2000
SAN FRANCISCO, CA 94105-2219
VOICE AND TDD (415) 904-5200
FAX (415) 904-5400

August 31, 2005

Denise R. Caron
Chief, Conservation/Environmental Flight
U.S. Air Force
30 CES/CEVP
806 13th Street, Suite 116
Vandenberg AFB, CA 93437-5242

Subject: Negative Determination ND-088-05, Relocate Falcon Launch Vehicle Program from SLC-3W to SLC-4W on south Vandenberg AFB, Santa Barbara County.

Dear Ms. Caron:

The Coastal Commission staff has reviewed the above-referenced negative determination. The Air Force proposes to relocate the upcoming Falcon Launch Vehicle Program from Space Launch Complex 3 West (SLC-3W) to SLC-4W on South Vandenberg Air Force Base, and to make minor modifications within the present boundary of SLC-4W to support the launch program. The proposed relocation of the Falcon program from SLC-3W to SLC-4W is necessary due to concerns expressed by the National Reconnaissance Office (NRO) regarding potential risks to NRO's national security asset located at SLC-3 East during the initial launch phase of Falcon vehicles from SLC-3W.

In December 2003 the Executive Director concurred with the Air Force's ND-103-03 for implementation of the Falcon Launch Vehicle Program at SLC-3W. The Falcon program is a private commercial venture to place commercial and research payloads into earth orbit from existing launch facilities at Vandenberg AFB. The Executive Director determined that the program would not generate new or additional adverse impacts on coastal resources not previously examined by the Commission in its concurrence with a consistency determination by the Air Force (CD-049-98) for launch activities at the adjacent SLC-3E. While the initial Falcon launch under ND-103-03 was expected to occur in 2004, the revised schedule calls for the first Falcon launch in 2005 and two launches in 2006.

All proposed launch facility modifications for the relocated Falcon program would occur within the existing and previously-disturbed area of SLC-4W. No sensitive habitats or resources occur within the fenced boundary of SLC-4W. To protect marine resources and special biological areas at Vandenberg AFB during the life of the relocated Falcon program, the Air Force will continue to implement measures described in the May 10, 1996, Biological Opinion issued by the U.S. Fish and Wildlife Service for the Titan Space Launch program at SLC-4W. To protect special status marine mammals that may be present underneath the launch path, the Falcon program is subject to the measures described in the Letter of Authorization issued by NOAA

Fisheries on March 4, 2005, for space vehicle launches from Vandenberg AFB. During Falcon vehicle launches, public access to the shoreline from Wall Beach to Jalama Beach (inclusive) will be prohibited for a five hour period, as is presently done for all space launches at South Vandenberg AFB. As the Falcon vehicle is much smaller than the Titan launch vehicles that previously used SLC-4W, and because no significant impacts on coastal resources (beyond temporary beach access closures) were documented as a result of noise, sonic boom, and exhaust materials from the Titan launches at SLC-4W, no significant impacts are expected to occur from the Falcon program.

After reviewing the accompanying *Final Draft Supplemental Environmental Assessment for the Falcon Launch Vehicle Program from SLC-4W at Vandenberg AFB SLC-3W*, the Commission staff agrees that the proposed relocation of the Falcon program to SLC-4W will not generate new or additional adverse impacts on coastal resources not previously examined by the Commission in CD-049-98 and ND-103-03 for launch activities on South Vandenberg AFB. Under the federal consistency regulations, a negative determination can be submitted for an activity "which is the same as or similar to activities for which consistency determinations have been prepared in the past." We therefore **concur** with your negative determination made pursuant to 15 CFR Section 930.35 of the NOAA implementing regulations. Please contact Larry Simon at (415) 904-5288 should you have any questions regarding this matter.

Sincerely,

(For) PETER M. DOUGLAS
Executive Director

cc: South Central Coast District Office
California Department of Water Resources
Governor's Washington, D.C., Office

Exhibit E

STATE OF CALIFORNIA – NATURAL RESOURCES AGENCY
ARNOLD SCHWARZENEGGER, GOVERNOR

CALIFORNIA COASTAL COMMISSION
45 FREMONT, SUITE 2000
SAN FRANCISCO, CA 94105-2219
VOICE (415) 904-5200
FAX (415) 904-5400
TDD (415) 597-5885

November 16, 2010

Beatrice L. Kephart
Chief, Asset Management Flight
30 CES/CEA
1028 Iceland Avenue
Vandenberg AFB, CA 93437-6010

Subject: Negative Determination ND-055-10 (Modifications to Space Launch Complex 4 East to support Falcon 9 and Falcon 9 Heavy Launch Vehicle Programs, Vandenberg Air Force Base, Santa Barbara Co.)

Dear Ms. Kephart:

The Coastal Commission staff has reviewed the above-referenced negative determination. The Air Force proposes to modify Space Launch Complex 4 East (SLC-4E) to support the Falcon 9 and Falcon 9 Heavy launch vehicle programs at Vandenberg Air Force Base. In December 2003 the Executive Director concurred with the Air Force's ND-103-03 for implementation of the Falcon 1 launch vehicle program at Space Launch Complex 3 West, and in August 2005 concurred with ND-088-05 for relocation of that program to Space Launch Complex 4 West. The Executive Director determined that those programs would not generate new or additional adverse impacts on coastal resources not previously examined by the Commission in its concurrence with a consistency determination by the Air Force (CD-049-98) for launch activities at the adjacent SLC-3E. The Falcon 9 and Falcon 9 Heavy are significantly larger launch vehicles compared to the Falcon 1, and the facilities at SLC-4W are not able to accommodate the larger Falcon vehicles. SLC-4E supported launch operations for the larger and more powerful Titan IV launch vehicle through 2005 and as a result the Air Force proposes to modify SLC-4E to accommodate the Falcon 9 program operated by Space Exploration Technologies (SpaceX).

The Air Force decommissioned SLC-4E in 2005 at the end of the Titan IV program but continued to implement security and fire suppression requirements at the complex, including vegetation control (e.g., mowing and disking of fire breaks and fire access roads) within the interior of the complex as well as the immediate exterior. The proposed modifications and construction activities for the Falcon program would occur within the existing perimeter of the SLC-4E complex and up to 30 feet outside the exterior fence line (for continuation of ongoing vegetation management activities). Proposed modifications to SLC-4E include demolition of some existing facilities, improvements to the administrative building, re-installing and/or re-initiating utilities, installing propellant tanks, resurfacing the launch water deluge drainage and retention basin, resurfacing the entrance road, refurbishing the security system, and construction of a new Integration and Processing Hanger building. Construction is scheduled to start in 2011

and last approximately two years. The Air Force and SpaceX anticipate a maximum of ten launch operations per year, divided equally between the Falcon 9 and Falcon 9 Heavy vehicles, to place government and commercial payloads into earth orbit in polar and sun-synchronous inclinations.

Endangered Species Act Section 7 consultation with the U.S. Fish and Wildlife Service is currently underway to establish protective measures for federally listed species that may be affected by the proposed construction and launch program activities, in particular the El Segundo blue butterfly and the seacliff buckwheat host plant. The Air Force will ensure that SpaceX will fund, implement, and comply with all measures, terms and conditions included in the resulting Biological Opinion to compensate for any potential adverse impacts to listed species. To protect special status marine mammals that may be present underneath the launch path, the Falcon program is subject to the protective measures described in the Letter of Authorization to the Air Force issued by the National Marine Fisheries Service on January 25, 2010, for missile and rocket launches at Vandenberg AFB. The Air Force states that all launch programs at Vandenberg AFB are required to establish debris impact corridors as an element of a program's safety review in case of a launch anomaly that requires destructive fight termination. As a part of that review, Ocean Beach and Jalama Beach county parks fall within debris impact corridors requiring their closure during launch operations, as is presently done for all space launches at South Vandenberg AFB. In conclusion, because construction activities would be located within the existing perimeter of SLC-4E, as the Falcon 9 and Falcon 9 Heavy launch vehicles are smaller than the Titan IV vehicles that previously used SLC-4E, and because no significant impacts on coastal resources (beyond temporary beach access closures) were documented as a result of noise, sonic boom, and exhaust materials from the Titan launches at SLC-4E, no significant impacts to coastal resources are expected to occur from modifications to SLC-4E or from the Falcon vehicle launch program.

The Commission staff **agrees** that the proposed modifications to SLC-4E will not generate new or additional adverse impacts on coastal resources not previously examined by the Commission in CD-049-98 and ND-088-08 for launch activities on South Vandenberg AFB. Under the federal consistency regulations, a negative determination can be submitted for an activity "which is the same as or similar to activities for which consistency determinations have been prepared in the past." We therefore **concur** with your negative determination made pursuant to 15 CFR 930.35 of the NOAA implementing regulations. Please contact Larry Simon at (415) 904-5288 should you have any questions regarding this matter.

Sincerely,

(for) PETER M. DOUGLAS
Executive Director

cc: Andrew Edwards, VAFB
CCC – South Central Coast District
California Department of Water Resources
Governor's Washington, D.C., Office

Exhibit F

STATE OF CALIFORNIA – NATURAL RESOURCES AGENCY EDMUND G. BROWN, JR., GOVERNOR

CALIFORNIA COASTAL COMMISSION
45 FREMONT, SUITE 2000
SAN FRANCISCO, CA 94105-2219
VOICE (415) 904-5200
FAX (415) 904-5400
TDD (415) 597-5885

October 13, 2014

Beatrice L. Kephart
Chief, Installation Management Flight
30 CES/CEI
ATTN: Andrew Edwards
1028 Iceland Avenue
Vandenberg Air Force Base, CA 93437-6010

Subject: Negative Determination ND-0035-14 (SpaceX Dragon In-Flight Abort Test and Falcon 9 First Stage Landing at Space Launch Complex-4 West, Vandenberg Air Force Base, Santa Barbara County)

Dear Ms. Kephart:

The Coastal Commission staff has reviewed the above-referenced project at Vandenberg Air Force Base (AFB). The U.S. Air Force proposes to oversee the Space Exploration Technologies Corporation's (SpaceX) proposed Falcon 9 rocket launch at Space Launch Complex-4 East (SLC-4E), the in-flight abort test of the Dragon spacecraft capsule and recovery operations approximately 1.5 miles off the VAFB coast, and the Falcon 9 first stage landing at SLC-4W. The Executive Director previously concurred with a negative determination from the Air Force (ND-055-10) in November 2010 for modifications to SLC-4E to support the Falcon 9 and Falcon 9 Heavy launch vehicle programs at Vandenberg AFB. The Air Force states in the subject negative determination that the proposed launch will be integrated into the Vandenberg AFB range infrastructure and will comply with range, safety, and communications requirements. The Air Force will monitor and maintain oversight of the launch process and communications with the rocket while on the ground and in flight, and will track the capsule and first stage to ensure that they operate safely within their predetermined performance envelopes.

The proposed Falcon 9 launch, recovery, and landing project includes the following elements:

- *Construction of a 300-foot diameter, 1.6-acre concrete landing pad at SLC-4W, requiring 25,000 cubic yards of grading with balanced cut and fill on the site.*

- *Installation of a 5.7-acre area of flat panels supported by scaffolding immediately west of the landing pad. This temporary structure provides a uniform flat surface extending west off the landing pad to allow the radar sensors on the Falcon 9 first stage to gauge altitude and vertical velocity as the vehicle makes its final descent to the pad. The scaffolding and panels will be installed two weeks prior to launch and removed two weeks after.*

- *Realignment and widening of sections of the existing service and access roads connecting SLC-4W and 4E in order to accommodate the transfer of the Falcon 9 first stage from the landing pad at SLC-4W to the hanger at SLC-4E.*

- *Installation at SLC-4W of ground-based communication, tracking, and video equipment, and three or four remote-controlled water cannons for firefighting capability.*

- *All storm water and/or firefighting runoff from the landing pad will be collected and diverted to an infiltration basin designed according to the California State Water Resources Control Board construction general permit.*

The Air Force anticipates 90-120 days of construction activity at SLC-4W, including 30 days during which concrete would be curing and only minimal construction activity would occur. The current schedule calls for construction to commence no sooner than February 2015 and the launch to take place in the summer of 2015.

Endangered Species Act Section 7 consultation with the U.S. Fish and Wildlife Service is currently underway to establish protective measures for federally listed species that may be affected by the proposed construction, launch, landing, and recovery activities, in particular the El Segundo blue butterfly and the seacliff buckwheat host plant. The Air Force will ensure that all measures, terms, and conditions included in the final Biological Opinion for the project will be implemented to protect listed species and habitat, minimize project impacts, and compensate for unavoidable project impacts. Proposed minimization and mitigation measures to protect the El Segundo blue butterfly, California least tern, Western snowy plover, and California red-legged frog are included in the negative determination. Special status marine mammals protected under the Marine Mammal Protection Act may be present under the Falcon 9 launch path, recovery corridor, and first stage landing path. To protect these marine mammals, the Falcon 9 program is subject to the protective measures described in the Letter of Authorization to the Air Force issued by the National Marine Fisheries Service for missile and rocket launches at Vandenberg AFB during the March 26, 2014 to March 26, 2019 time period. Proposed minimization and mitigation measures to protect the Southern sea otter, Pacific harbor seal, California sea lion, Stellar sea lion, and Northern elephant seal are included in the negative determination. The Air Force concluded that with the protective measures required by the ESA and the MMPA, the proposed Falcon 9 project will not adversely affect listed terrestrial or marine species or their habitats.

The Air Force states that all launch programs at Vandenberg AFB are required to establish debris impact corridors as an element of a program's safety review in case of a launch anomaly that requires destructive flight termination. Because of the launch trajectory and the Falcon 9 first stage returning to the SLC-4W landing pad, the Air Force may require closure of Surf Beach and Ocean Park to ensure public safety during a launch or landing anomaly. For typical rocket launches from South Vandenberg AFB, road blocks are placed at the intersection of Ocean Boulevard and 13th Street approximately three hours prior to a launch to close access to the beach. Approximately two hours after completion of a successful launch and landing program,

access to Surf Beach and Ocean Park will reopen. The proposed temporary closure is consistent with past and current launch activities at South Vandenberg AFB and will not create adverse effects on public access and recreation. Portions of the proposed temporary scaffolding and panels to be installed on the west side of the permanent concrete landing pad may be visible from the shoreline and offshore waters, but any impact on scenic resources would be less than significant given the four-week-long time period of panel installation.

In conclusion, the Commission staff **agrees** that the proposed permanent and temporary modifications to SLC-4W, and the one-time Dragon in-flight abort test and Falcon 9 first stage landing at SLC-4W, will not adversely affect coastal zone resources. We therefore **concur** with your negative determination made pursuant to 15 CFR 930.35 of the NOAA implementing regulations. Please contact Larry Simon at (415) 904-5288 should you have any questions regarding this matter.

Sincerely,

(for) CHARLES LESTER
Executive Director

cc: CCC – South Central Coast District

Exhibit G

STATE OF CALIFORNIA – NATURAL RESOURCES AGENCY EDMUND G. BROWN, JR., GOVERNOR

CALIFORNIA COASTAL COMMISSION

45 FREMONT, SUITE 2000
SAN FRANCISCO, CA 94105- 2219
VOICE (415) 904- 5200
FAX (415) 904- 5400
TDD (415) 597-5885

August 31, 2015

Beatrice L. Kephart
Chief Installation Management Flight
Department of the Air Force
ATTN: Samantha Kaisersatt
1028 Iceland Avenue
Vandenberg AFB, CA 93437-6010

Subject: Negative Determination ND-0027-15 (Recurring Falcon 9 rocket launches from SLC-4E and first stage boost-back landings at SLC-4W or an offshore barge, Vandenberg Air Force Base, Santa Barbara Co.)

Dear Ms. Kephart:

The Coastal Commission staff has reviewed the above-referenced project at Vandenberg Air Force Base (AFB). The Air Force proposes to oversee the Space Exploration Technologies Corporation's (SpaceX) program of recurring Falcon 9 rocket launches from Space Launch Complex – 4 East (SLC-4E) and first-stage boost-back and landings at SLC – 4 West (SLC-4W) or on a barge offshore of Vandenberg AFB. The proposed launch and landing program will be integrated into the Vandenberg AFB range infrastructure and will comply with all range, safety, and communications requirements. The Air Force will monitor and maintain oversight of the launch process and communications with the Falcon 9 rocket while on the ground, in flight, and during first-stage boost-back and landing at either SLC-4W or the offshore barge.

The Executive Director previously concurred with a negative determination from the Air Force (ND-055-10) in November 2010 for modifications to SLC-4E to support the Falcon 9 and Falcon 9 Heavy launch vehicle programs at Vandenberg AFB. In October 2013 the Executive Director concurred with a negative determination from the Air Force (ND-0035-14) for a single launch of the Falcon 9 rocket from SLC-4E, the in-flight abort test of the Dragon spacecraft capsule and recovery operations approximately 1.5 miles off the Vandenberg AFB coast, and the Falcon 9 first stage boost-back and landing at SLC-4W. ND-0035-14 also included construction of a 1.6-acre concrete landing pad at SLC-4W; a temporary 5.7-acre area of flat panels west of the landing pad (installed two weeks prior to a launch and removed two weeks after launch) to facilitate radar sensor operations during first-stage landings; realignment of existing service and access roads; installation of ground-based communications equipment; and improvements to stormwater and firefighting runoff collection infrastructure at SLC-4W. The construction activity and test flight operations proposed under ND-0035-14 have yet to commence.

The Air Force now proposes to oversee up to six SpaceX Falcon 9 launches per year from SLC-4E and associated first-stage landings at SLC-4W or on the offshore barge. The proposed launch, first-stage maneuvering, and first-stage landing process previously concurred with in ND-0035-14 for a landing at SLC-4W would be the same for recurring launches and for the barge landing alternative. The Air Force states that as a contingency action to landing the Falcon 9 first-stage booster at SLC-4W, SpaceX proposes to potentially return the first-stage booster to an offshore barge (approximately 300 feet long and 100 feet wide), specifically designed as a first-stage landing platform and located at least 31 miles offshore of Vandenberg AFB. This contingency landing location would be used if there are critical assets on Vandenberg AFB that would not permit first-stage over-flight and landing at SLC-4W. The Air Force states that for range safety analysis to verify first-stage landing performance, it is important that the barge landing trajectory be the same as for the SLC-4W landing. The barge location is the furthest from the coastline that can be used to maintain the same boost-back trajectory as for a SLC-4W landing.

The proposed offshore barge landing is the only element of the overall Falcon 9 program that was not analyzed and concurred with by the Executive Director under the previous negative determinations for a Falcon 9 launch and upland landing of the first-stage booster. The landing barge, an ocean tug, and a support vessel would originate from Long Beach Harbor, and after a successful landing the first stage would be secured onto the barge and transported to Long Beach Harbor for off-loading and subsequent transport to a SpaceX testing facility in McGregor, Texas. To protect marine mammals, the Falcon 9 program, including the newly-proposed offshore barge landings, is subject to the protective measures described in the Letter of Authorization to the Air Force issued by the National Marine Fisheries Service for missile and rocket launches at Vandenberg AFB during the March 26, 2014 to March 26, 2019 time period. The Air Force has also received concurrence from the U.S. Fish and Wildlife Service and the National Marine Fisheries Service that the proposed offshore barge landings include all necessary avoidance and protective measures to protect federally listed species. In addition, no kelp forests or seagrass beds are at or near the proposed offshore barge landing site, and the nearest rocky substrates are located approximately ten miles north-northeast of the barge landing site.

The Air Force reports that the two attempts at a Falcon 9 first-stage barge landing offshore of the Kennedy Space Center in Florida were unsuccessful, resulting in the first-stage impacting the barge and exploding. Should a Falcon 9 first-stage barge landing at the offshore Vandenberg location be similarly unsuccessful, the Air Force states that SpaceX will implement recovery operations at the barge and adjacent ocean waters. Based on the two Florida events, almost all of the floating debris would be recovered from the ocean surface and the remaining dense, inert debris would sink to the ocean floor, which is approximately 4,000 feet below the ocean surface at the proposed barge location. Any release of fuel from a first-stage booster explosion at the barge would evaporate quickly after exposed to the air and would usually completely dissipate after one to two days. Given that the landing barge would be located no closer than 31 miles offshore of Vandenberg AFB, well seaward of the coastal zone boundary, the accidental destruction of the first-stage booster at this location would not affect coastal zone resources.

All launch programs at Vandenberg AFB are required to establish debris impact corridors as an element of a program's safety review in case of a launch anomaly that requires destructive flight termination. Because of the launch trajectory and the Falcon 9 first stage returning to the SLC-4W landing pad or the offshore landing barge, the Air Force may require closure of Surf Beach and Ocean Park to ensure public safety during a launch or landing anomaly. For typical rocket launches from South Vandenberg AFB, roadblocks are placed at the intersection of Ocean Boulevard and 13th Street approximately three hours prior to a launch to close access to the beach. Approximately two hours after completion of a successful launch and landing program, access to Surf Beach and Ocean Park will reopen. The proposed temporary closure is consistent with past and current launch activities at South Vandenberg AFB and will not create adverse effects on public access and recreation. In addition, the U.S. Coast Guard would issue a Local Notice to Mariners that defines a Public Ship Avoidance Area around the barge landing location. Recreational boating and fishing would only be temporarily interrupted during offshore barge landing or debris recovery operations.

The Air Force also states in its negative determination that if SpaceX's next two consecutive barge landing attempts (and the resultant explosion and sinking of debris into the ocean) off the California coast are unsuccessful, the Air Force will inform the Commission's Executive Director about the status of the program and whether it will continue as proposed or be modified in some manner. In conclusion, the Commission staff **agrees** that the proposed recurring Falcon 9 launch and first-stage landing at SLC-4E and SLC-4W, respectively, at Vandenberg AFB, and the first-stage landing on a barge located 31 miles offshore of Vandenberg AFB, will not adversely affect coastal zone resources. The proposed launch and inland landing operations are similar to those concurred with by the Executive Director in ND-0035-14. We therefore **concur** with your negative determination made pursuant to 15 CFR 930.35 of the NOAA implementing regulations. Please contact Larry Simon at (415) 904-5288 should you have any questions regarding this matter.

Sincerely,

CHARLES LESTER
Executive Director

cc: CCC – South Central Coast District

Exhibit H

CALIFORNIA COASTAL COMMISSION
455 MARKET STREET, SUITE 228
SAN FRANCISCO, CA 94105-2219
VOICE (415) 904- 5200
FAX (415) 904- 5400
TDD (415) 597-5885

May 5, 2023

Beatrice L. Kephart
Chief Installation Management Flight
Department of the Air Force
ATTN: Samantha Kaisersatt
1028 Iceland Avenue
Vandenberg AFB, CA 93437-6010

Subject: Negative Determination **ND-0009-23** (Increase in frequency of space launch operations by SpaceX at Vandenberg Space Force Base)

Dear Chief Kephart:

The Coastal Commission staff has reviewed the above-referenced negative determination regarding the proposed increase in Space Exploration Technologies' (SpaceX) Falcon 9 launch activities at Vandenberg Space Force Base (VSFB) from six to 36 per year as well as the addition of offshore landing locations in the Pacific Ocean.

Background
In December 2003, the Executive Director concurred with the Air Force's ND-103-03 for implementation of the Falcon 1 launch vehicle program at Space Launch Complex 3 West, and in August 2005 concurred with ND-088-05 for relocation of that program to Space Launch Complex 4 West. The Executive Director determined that those programs would not generate new or additional adverse impacts on coastal resources not previously examined by the Commission in its concurrence with a consistency determination by the Department of the Air Force (CD-049-98) for launch activities at the adjacent SLC-3E associated with its Evolved Expendable Launch Vehicle Program.

In November 2010, the Executive Director concurred with the Air Force's ND-055-10 for modification of Space Launch Complex 4 East (SLC-4E) to support the Falcon 9 and Falcon 9 Heavy launch vehicle programs at VSFB and the use of SLC-4E for a maximum of ten launches per year (five of each). The Falcon 9 and Falcon 9 Heavy are significantly larger launch vehicles compared to the Falcon 1, and the facilities at SLC-4W are not able to accommodate the larger Falcon vehicles. SLC-4E supported launch operations for the larger and more powerful Titan IV launch vehicle through 2005 and, as a result, the Air Force modified SLC-4E to accommodate the Falcon 9 program operated SpaceX. In October 2013, the Executive Director concurred with a negative determination from the Air Force (ND-0035-14) for a single launch of the Falcon 9 rocket from SLC-4E, the in-flight abort test of the Dragon spacecraft capsule and

recovery operations approximately 1.5 miles off the Vandenberg AFB coast, and the Falcon 9 first stage boost-back and landing at SLC-4W. ND-0035-14 also included construction of a 1.6-acre concrete landing pad at SLC-4W; a temporary 5.7-acre area of flat panels west of the landing pad (installed two weeks prior to a launch and removed two weeks after launch) to facilitate radar sensor operations during first-stage landings; realignment of existing service and access roads; installation of ground-based communications equipment; and improvements to stormwater and firefighting runoff collection infrastructure at SLC-4W. In August 2015, the Executive Director concurred with ND-0027-15 for up to six SpaceX Falcon 9 launches per year from SLC-4E and associated first-stage landings at SLC-4W or on an offshore barge specifically designed as a first-stage landing platform and located at least 31 miles offshore of VSFB.

In the current proposal, SpaceX Falcon 9 launch operations previously concurred with by the Executive Director would continue and be increased to up to 36 per year. Existing infrastructure will be used and no construction activities or ground disturbance is proposed. First stage processing protocols at VSFB would remain unchanged but would increase in frequency. In addition, a new offshore landing location would be designated, SpaceX may add up to 100 personnel at VSFB and would increase its current level of use of specialized trucks for overland transport and barges for in-water transport of boosters, fairings, and other materials. SpaceX would also increase its processing of payloads and refurbishment of boosters and fairings at existing SpaceX facilities on VSFB. Up to 36 boosters and 36 fairings would be refurbished each year.

Marine Debris

Although this refurbishment and reuse of components by SpaceX significantly reduces the volume of marine debris generated from its launches over the Pacific Ocean, these launches and related activities (such as the use of weather balloons prior to launches) does result in the release of debris material into the ocean. To address this, the Department of the Air Force notes in ND-0009-23 that:

> SpaceX proposes to participate in the SLD 30 Adopt-A-Beach Program and conduct quarterly beach cleanups at Surf Beach. SpaceX also proposes to make an annual contribution to the California Lost Fishing Gear Recovery Project to offset the impacts from unrecoverable debris (weather balloon/radiosonde, drogue parachute, parafoil, and MVac skirt ring). For every 3 pounds of unrecovered debris, SpaceX would make a compensatory donation of $10.00, which is sufficient to recover 1 pound of lost fishing gear.

Based on estimates of the roughly 177 pounds of material anticipated to be released into the ocean and not recovered per launch, SpaceX would contribute approximately $21,252 per year to the California Lost Fishing Gear Recovery Project. The actual contribution would be based on the actual amount of material released. With this commitment and SpaceX's participation in VSFB's Adopt-A-Beach program, Commission staff agrees that the proposed project would offset marine debris generated from launch activities through the removal of derelict fishing gear and thus

help ensure that the project does not result in a net increase in marine debris in California coastal waters.

Coastal Access and Recreation

The Department of the Air Force (DAF) also addresses in ND-0009-23 the potential effects of the proposed increase in launch activity on coastal access and recreation that would result from safety closures of public beaches in northern Santa Barbara County during launch operations. The need for such closures is summarized by DAF:

> Since 1979, an evacuation and closure agreement has been in place between the DAF and Santa Barbara County. For the safety of park visitors, the County Parks Department and the County Sheriff currently close the parks upon request from the DAF. This agreement includes closing Jalama Beach County Park, Ocean Beach County Park, Surf Beach, and Point Sal Road, in the event of launch activities that have been determined by SLD 30 Range Safety to have certain human health and safety risks. These closures are communicated at least 72 hours' prior to closure and can be closed for a maximum of 48 hours per the agreement.

Based on information available to Commission staff, the number of such closures has not exceeded 12 per year and has typically been substantially less for the past several decades. In its concurrence with the DAF's consistency determination for the Evolved Expendable Launch Vehicle Program (CD-049-98), the Commission found that with the addition of mitigation measures, up to 14 beach closures per year would be consistent with California's Coastal Management Program. Mitigation measures included the consideration of coastal recreation impacts during launch scheduling and planning so that launches on weekends, holidays, and peak summer recreation season are avoided.

As part of the project proposed in ND-0009-23, the DAF states that "Launches from SLC-4E due to the Proposed Action would not cause an exceedance of 12 closures of Jalama Beach County Park per year" and that while "In the past, SLD 30 has restricted access to Ocean Beach County Park and Surf Beach for all launches from SLC-4E," this level of beach closures is no longer necessary and can be reduced:

> Based on updated modeling and safety considerations, SLD 30 Range Safety and the Security Forces Squadron have determined closures are only required if the first stage of the Falcon 9 launch vehicle will boost back to land at SLC-4W. Thus, closures due to the Proposed Action would be infrequent (up to 12 times per year) and would not substantially diminish the protected activities, features, or attributes of Jalama Beach, Surf Beach, or Ocean Beach County Parks.

Commission staff greatly appreciates DAF's efforts to update its modeling and safety considerations in a way that would allow for increased launch activity while still maintaining public safety and not expanding adverse impacts to coastal access and recreation. With this reduction in proposed safety closures of Ocean Beach County Park and Surf Beach to only boost-back landing activities (rather than during launches

and landings, as is the current practice) as well as the commitment to not exceed 12 closures per year of any northern Santa Barbara County beaches (Jalama Beach, Ocean Beach County Park, and Surf Beach), the Commission staff agrees that the proposed project will not generate new or additional adverse impacts on coastal access and recreation not previously examined and found to be consistent by the Commission and Executive Director in CD-049-98 and subsequent negative determinations for launch activities on VSFB.

Biological Resources
As DAF notes in ND-0009-23,

> Multiple federally listed species protected under the Endangered Species Act (ESA), potential habitat that supports these listed species, and several state special status species occur within the project vicinity. Pursuant to Section 7 of the ESA, the [U.S. Space Force (USSF)] has prepared two Biological Assessments for the federally listed species: one for species under the jurisdiction of the United States Fish and Wildlife Service (USFWS), and one for species under the jurisdiction of the National Marine Fisheries Service (NMFS). A list of federal and state special status species occurrence within the Proposed Action Area is included in Attachment 3. Potential impacts on federal and state listed species include indirect impacts resulting from water use, disruption of breeding, foraging, or roosting behaviors, and abandonment of habitat including breeding or roosting sites due to project related noise. The USSF has worked with the USFWS and NMFS to develop the avoidance, minimization, and mitigation measures described in Attachment 4 that are included as part of the Proposed Action to reduce impacts on biological resources. The USSF will implement these measures. Impacts to biological resources will not be significant.

Mitigation measures that would be implemented by the U.S. Space Force as part of the proposed project include a variety of protective measures as well as extensive baseline and post-launch monitoring of sensitive species such as red-legged frogs, western snowy plovers, California least tern, marine mammals, and bat species in the vicinity of the launch complex. If species-specific monitoring demonstrates a decline in a target population that is attributable to launch activities or due to indeterminate causes, specific compensatory mitigation action would be carried out on VSFB by the U.S. Space Force. Depending on the species, such mitigation would include habitat restoration, predator control efforts or similar activities.

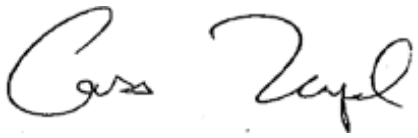
With the U.S. Space Force's commitment to carry out the specific biological resource mitigation measures detailed in Attachment 4 of ND-0009-23, as well as the lack of evidence of significant impacts on biological resources that have been documented by ongoing biological resource monitoring as a result of noise, sonic boom, and exhaust materials from past and current launch activities, Commission staff agrees that the proposed project will not generate new or additional adverse impacts on coastal biological resource not previously examined and found to be consistent by the

Commission and Executive Director in CD-049-98 and subsequent negative determinations for launch activities on VSFB.

Conclusion

In addition to the commitments described above to address the proposed project's potential to contribute to marine debris, loss of coastal access and recreation opportunities and disturbance of sensitive biological resources, the U.S. Space Force has also committed to convene an informational briefing with Commission staff in May of 2028 to present the results of biological monitoring efforts, beach closures and marine debris reduction and offset efforts over the previous five years. In addition to facilitating information sharing, this briefing would also provide an opportunity for U.S. Space Force and Commission staff to discuss potential lessons learned, emerging issues and unanticipated impacts associated with the proposed increase in SpaceX Falcon 9 launch activities. With these commitments, Commission staff **agrees** that the proposed increase to 36 Falcon 9 launches per year at VSFB and designation of a new offshore landing area will not adversely affect coastal zone resources. The proposed launch activities are similar to those concurred with by the Commission in CD-049-98 and by the Executive Director in ND-0027-15. We therefore **concur** with your negative determination made pursuant to 15 CFR 930.35 of the NOAA implementing regulations. Please contact Cassidy Teufel at Cassidy.Teufel@coastal.ca.gov should you have any questions regarding this matter.

Sincerely,



Federal Consistency Manager
(for)

KATE HUCKELBRIDGE
Executive Director

cc: CCC – South Central Coast District

Exhibit I

STATE OF CALIFORNIA - NATURAL RESOURCES AGENCY GAVIN NEWSOM, *GOVERNOR*

CALIFORNIA COASTAL COMMISSION
ENERGY, OCEAN RESOURCES AND FEDERAL CONSISTENCY
455 MARKET STREET, SUITE 300
SAN FRANCISCO, CA 94105-2421
VOICE (415) 904-5200
FAX (415) 904-5400

February 16, 2024

Beatrice L. Kephart
United States Space Force
30 CES/CEI
1028 Iceland Avenue
Vandenberg SFB, CA 93437-6010

Re: **Remedial Action Proposal – SpaceX Falcon 9 Space Launch Activities**

Dear Chief Kephart,

The purpose of this letter is to provide notification and supporting information regarding the determination by the California Coastal Commission (Commission) that the project to expand the Space Exploration Technologies (SpaceX) Falcon 9 space launch and landing program at Vandenberg Space Force Base (VSFB), for which the U.S. Space Force submitted to the Commission a negative determination (no. ND-0009-23), is being conducted and is having effects on coastal uses and resources substantially different than originally described and as a result, is affecting coastal uses and resources and is not consistent to the maximum extent practicable with the enforceable policies of the California Coastal Management Program (CCMP). This letter further proposes several remedial actions for the U.S. Space Force to take to address the situation.

Commission staff appreciates the close communications with your staff over the past several months to better understand the history, need, and process for Falcon 9 space launch and landing operations at VSFB. We also appreciate your efforts to work with us to identify a pathway to address the inconsistency of those operations with the CCMP. We look forward to continuing this coordination.

Subject Negative Determination
On May 5, 2023, the Commission's Executive Director concurred with negative determination no. ND-0009-23 by the U.S. Space Force for an expansion of the SpaceX Falcon 9 program at VSFB from six to 36 annual launches from the existing SLC-4E launch complex as well as the addition of offshore landing locations in the Pacific Ocean and associated activities such as payload processing. The launches serve the primary purpose of placing into Earth orbit small satellites for SpaceX's "Starlink" commercial satellite internet business.

As detailed further in the November 30, 2023, staff report[1] prepared for the Commission's consideration, the U.S. Space Force described in its negative determination that for public safety, SpaceX launches may require short-duration (between four and eight hours)

[1] Available at https://documents.coastal.ca.gov/reports/2023/12/F8c/F8c-12-2023-report.pdf

Exhibit 9
CD-0003-24

closures and evacuations of Jalama Beach and Jalama Beach County Park and Campground (Jalama) outside of VSFB but that the number of such closures would not exceed 12 per year. With the addition and implementation of a variety of measures to minimize adverse impacts to public coastal access and recreation, both of which are coastal uses and resources protected by enforceable policies of the CCMP, the Commission previously found in 1998 its concurrence with the U.S. Air Force's Consistency Determination No. CD-049-98 for an earlier space program that this level of temporary beach closures would not be inconsistent with the relevant enforceable policies of the CCMP.

Shortly after the Executive Director's concurrence with negative determination no. ND-0009-23, however, Commission staff learned through discussions with staff from Santa Barbara County's Parks and Recreation Department that the number of temporary closures and evacuations of the beach and campground at Jalama due to SpaceX launches within the first seven months of 2023 had already surpassed the annual maximum of 12 that the U.S. Space Force committed not to exceed in its negative determination. Further, Commission staff learned that public coastal access and recreation at Jalama was being affected by SpaceX launch activities in more ways than just the temporary closure and evacuation of the beach and campground. Specifically, public coastal access and recreation is also adversely affected through (1) closures of the 14 mile long road between Highway 1 and Jalama Beach to incoming traffic in advance of scheduled SpaceX launches, even when a full closure and evacuation does not occur; (2) email notices of possible closure and evacuation to those holding campground reservations during the time of a scheduled SpaceX launch; and (3) website notices of possible closure and evacuation to those seeking to secure a campsite reservation during the time of a scheduled SpaceX launch. These launch activities limit and prevent coastal access and recreation, result in cancellations of campsite reservations and limit the number of reservations secured.

None of these adverse impacts to public coastal access and recreation were acknowledged or discussed by Space Force in its negative determination. Accordingly, they were also not considered by the Executive Director before issuing her concurrence. Following Commission staff's identification of this issue, U.S. Space Force staff confirmed that its understanding of coordination and communication between SpaceX and Santa Barbara County staff was incomplete and that a wider range of adverse impacts were occurring as a result of launch activities than it had described in its negative determination. Commission staff also visited the SpaceX launch facility on VSFB in September 2023 and met with SpaceX staff who acknowledged the public access and recreation impacts associated with its launch activities.
In addition, as noted by Space Force in its negative determination and confirmed through review of publicly available SpaceX launch records by Commission staff, SpaceX carried out at least 13 launches from VSFB in 2022, more than double the six previously considered and concurred with by the Executive Director in August of 2015 through review of negative determination no. ND-0027-15 from the U.S. Air Force.

As a result of the Commission's enhanced understanding of SpaceX's space launch activities carried out under ND-0009-23, it determined on December 12, 2023, that the activities are being conducted and are having effects on coastal uses and resources substantially different than originally described by the U.S. Space Force in its negative

determination. In addition, because these effects exceed those which the Commission has previously determined to be consistent with the public coastal access and recreation policies of the CCMP, the Commission also determined that the substantially different effects from the SpaceX launch activities are not consistent to the maximum extent practicable with the enforceable policies of the CCMP. Feasible alternatives are available which would avoid or significantly reduce the adverse impacts of SpaceX's launch activities and mitigation measures may also be available to offset them. Further supporting information regarding the Commission's determinations is available in the previously referenced November 30, 2023, staff report considered and adopted by the Commission.

Remedial Action

On December 15, 2023, the Commission approved a resolution[2] authorizing its Executive Director to prepare and send a letter to the U.S. Space Force proposing the following remedial actions to resolve this situation and ensure space launch and landing activities by SpaceX are carried out consistent with the enforceable policies of the CCMP:

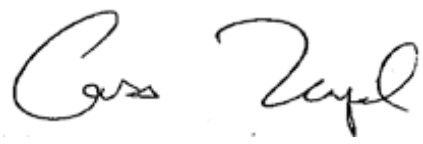
1. U.S. Space Force should prepare and submit a consistency determination (CD) for the expansion of SpaceX Falcon 9 space launch and landing activities at VSFB from six per year to 36, with a complete evaluation of conformance with the enforceable policies of the CCMP. This should include analysis of effects to public coastal access and recreation that integrates currently available information regarding the various manners in which these coastal resources and uses are affected and a proposal to provide compensatory mitigation for those impacts that have already occurred, and will continue to occur, due to continuing Falcon 9 space launch and landing activities.

2. Until that CD has been submitted and considered by the Commission, U.S. Space Force should limit SpaceX launch azimuths and scheduling in order to avoid further adverse impacts to public coastal access and recreation at Jalama.

Conclusion

We look forward to U.S. Space Force's timely consideration of the information in this letter and implementation of the identified remedial actions. If you have any questions or would like to discuss implementation of the remedial actions please contact Cassidy Teufel at Cassidy.Teufel@coastal.ca.gov.

Sincerely,



Cassidy Teufel
Director
Energy, Ocean Resources and Federal Consistency Division.

[2] https://documents.coastal.ca.gov/reports/2023/12/F8c/F8c-12-2023-report.pdf

Exhibit J

COASTAL ZONE MANAGEMENT ACT CONSISTENCY DETERMINATION FOR SpaceX Operations at Space Launch Complex 4, Vandenberg Space Force Base, California

March 2024

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ACRONYMS AND ABBREVIATIONS

BCI	Bat Conservation International
BMPs	Best Management Practices
BO	Biological Opinion
CARB	California Air Resources Board
C.F.R.	Code of Federal Regulations
CCA	California Coastal Act
CCMP	California Coastal Management Plan
CD	Consistency Determination
CDFW	California Department of Fish and Wildlife
CNDDB	California Natural Diversity Database
CRLF	California red-legged frog
CZMA	Coastal Zone Management Act
DAPTF	Declining Amphibian Populations Task Force
dB	decibel(s)
dBA	A-weighted decibel(s)
DOD	Department of Defense
E	East
EPMs	Environmental Protection Measures
ESA	Endangered Species Act
FAA	Federal Aviation Administration
ft	foot or feet
km	kilometer(s)
LAA	May affect, likely to adversely affect
Lmax	maximum sound level
lbs	pounds
LEO	low-earth orbit
LOA	Letter of Authorization
m	meter(s)
mi	mile(s)
MMPA	Marine Mammal Protection Act
MSRS	ManTech SRS Technologies, Inc.
NA	Not Applicable
NCI	Northern Channel Islands
NE	No Effect
NL	Not Listed under the ESA
NLAA	May affect, not likely to adversely affect
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOTAM	Notices to Airmen
NOTMAR	Local Notices to Mariners
NRHP	National Register of Historic Places
psf	pounds per square foot
RWQCB	California Regional Water Quality Control Board
SBCAPCD	Santa Barbara County Air Pollution Control District
SECDEF	Secretary of Defense
SEL	sound exposure level
SLC	Space Launch Complex
SLD 30	Space Launch Delta 30
SMR	State Marine Reserve
SPCC	Spill Prevention, Contingency, and Countermeasures
U.S.	United States
U.S.C.	United States Code
USCG	U.S. Coast Guard
USFWS	U.S. Fish and Wildlife Service
USSF	United States Space Force
VSFB	Vandenberg Space Force Base
W	West

1 INTRODUCTION

Space Launch Delta 30 (SLD 30) of the Department of the Air Force (DAF), United States (U.S.) Space Force (USSF), submits this Consistency Determination (CD) for the California Coastal Commission's review. The Proposed Action would implement Space Exploration Technologies Corp. (SpaceX) operations at Space Launch Complex-4 (SLC-4) on Vandenberg Space Force Base (VSFB), including additional downrange landing locations.

The purpose of the Proposed Action is to provide greater mission capability to government and commercial entities such as the Department of Defense (DOD) and National Aeronautics and Space Administration (NASA) by increasing Falcon 9 launch cadence to support increased demand from these customers. The Federal Aviation Administration (FAA) forecasts that commercial launch operations will increase in the United States (U.S.) from an all-time high in 2022 of 87 launches, to up to 186 launches by 2026. The DOD, NASA, and other Federal agencies obtain access to space through the procurement of commercial launch services, rather than with Government-owned or operated launch systems. As such, commercial launch capability is critical to the national defense, America's national space objectives, and the National Space Policy of the United States (May 2020).

In furtherance of the National Space Policy and U.S. Government space launch requirements, this Proposed Action is needed to enable SpaceX to meet the ever increasing need to implement missions for the U.S. Government. SpaceX is currently one of *only* two U.S. launch service providers certified to launch national security missions for the USSF's National Security Space Launch program, which procures launches for all the military services as well as the Intelligence Community. The addition of new northerly trajectories from VSFB is also needed to allow SpaceX to reach inclinations not currently available through existing trajectories to support new operational capabilities for the U.S. Government as well as commercial satellite operators.

The USSF's mission to "secure our Nation's interests in, from, and to space" is enabled by Space Systems Command's largest organization, the Assured Access to Space Directorate. The Assured Access to Space Directorate procures launch services from the commercial space transportation industry at VSFB, one of only two Federal Ranges from which national security space launches can occur—and the only Federal Range on the West Coast. Space launch for the USSF, other DOD organizations, and the Intelligence Community is reliant on commercial space launch service providers, as DOD does not operate its own space launch vehicles. SpaceX supports, and is under contract for, the full spectrum of U.S. Government space mission requirements.

The Proposed Action fulfills Congress's grant of authority to the Secretary of Defense (SECDEF), pursuant to 10 United States Code § 2276(a), *Commercial Space Launch Cooperation*, that SECDEF is permitted to take action to:

> "(1) maximize the use of the capacity of the space transportation infrastructure of the [DOD] by the private sector in the U.S.;
>
> (2) maximize the effectiveness and efficiency of the space transportation infrastructure of the [DOD];
>
> (3) reduce the cost of services provided by the [DOD] related to space transportation infrastructure at launch support facilities and space recovery support facilities;
>
> (4) encourage commercial space activities by enabling investment by covered entities in the space transportation infrastructure of the [DOD]; and

(5) foster cooperation between the [DOD] and covered entities."

The Proposed Action is needed to fulfill the 2020 National Space Policy of the United States (U.S. Government 2020) to reduce space transportation costs and ensure continued exploration, development, and space use are more accessible. The Proposed Action supports SLD 30's vision, along with SLD 45, to become the "world's most innovative space launch and landing team."

By increasing launch capacity at VSFB, the Proposed Action allows continued fulfillment of the 2020 National Space Policy, including promoting a "robust commercial space industry and strengthen United States leadership as the country of choice for conducting commercial space activities" (U.S. Government 2020). The Proposed Action ensures that U.S. space launch capability is not reduced or limited, and that the U.S. remains the world leader in space launch technology.

Several decades ago, the U.S. Government transitioned away from its historical approach of U.S. Government-developed and -operated rockets to the use of commercial space launch vehicles, procured as a commercial service. Doing so has provided tremendous reduction in costs to U.S. taxpayers, significantly increased space launch vehicle reliability, and promoted innovative new technologies like rocket reusability. Lower launch costs are a direct value to the taxpayer and allow the DOD to field space systems more efficiently to counter increased adversary space threats and enhance U.S. space-based services to U.S. and allied warfighters. Cost benefits are realized through competitive commercial launch pricing, which is created in-part by efficient commercial launch operations. The viability and health of commercial launch services providers—enabled through a regular flight rate—is critical to the U.S. Government. Through competitive acquisition of launch in the National Security Space Launch Program's Phase 2 procurement, the USSF saved $7 billion in taxpayer funds.[1] SpaceX has dramatically reduced the cost of access to space through the re-use of first stage rocket boosters and payload fairings. SpaceX is currently the only launch operator worldwide recovering, refurbishing, and reusing first-stage boosters and fairings—which means that SpaceX launch operations does not routinely expend rocket boosters or fairings into the ocean following launch. Launch system recovery and reuse has provided the U.S. Government the ability to rapidly launch and utilize new space systems architecture, such as satellite constellations in low-Earth orbit, quickly fielding new national security capability on orbit at substantially reduced cost.

SpaceX has developed Starlink and Starshield, satellite constellations in low-Earth orbit that require numerous launches to develop and maintain the constellation. Starlink is a critical national capability that is directly utilized by DOD and the intelligence community, which contracts directly for satellite communications services important to the national defense and in support of U.S. interests abroad. Here, Starlink is a services provider for the DOD under numerous contracting vehicles, including the U.S. Space Force Commercial Satellite Communications Office, the U.S. Air Force's Global Lightning program[2], and other programs designed to enhance U.S. national security capability on-orbit and on the ground. Starlink services have also been directly procured by each of the U.S. military services, and by U.S. Special Operations Command. More broadly, Starlink is under contract with the Federal Emergency Management Agency, the Department of State, Department of Veterans Affairs, Department of Transportation, U.S. Coast Guard (USCG), Customs and Border Patrol, U.S. Geological Survey, U.S. Forest Service, the National Oceanic and Atmospheric Administration (NOAA), and many other government organizations at the state

[1] https://www.af.mil/News/Article-Display/Article/2305576/space-force-awards-national-security-space-launch-phase-2-launch-service-contra/

[2] https://www.airandspaceforces.com/global-lightning-satcom-project-expanding-to-ac-130-kc-135/

and local level. These agencies include emergency management personnel who are actively using Starlink to facilitate emergency response and recovery efforts. At any given point in time, Starlink can be activated and deployed globally to respond to various crises. With respect to these contracts and customer commitments, it is in the public interest to continuously enhance Starlink network capacity, particularly in furtherance of U.S. Government purposes and objectives. SpaceX's rapid launch capability and continuous deployment of Starlink satellites on orbit directly correspond to improved network performance that scales directly with network growth to meet escalating demand. Starlink launches are not incidental; each individual Starlink launch is part of a deliberate, planned effort to meet capacity needs to support specific customer requirements or demand, including the U.S. Government. The capability of new satellites allows SpaceX to add capacity more quickly and interconnect the Starlink constellation, to serve critical U.S. Government needs around the globe, and to launch critical communication services for aviation and maritime in the U.S. and the rest of the world's most remote locations.

SpaceX also launches payloads for the USSF's Space Development Agency as part of the Proliferated Warfighter Space Architecture, a resilient layered network of military satellites designed to quickly deliver needed national security space capabilities to the joint warfighter. In addition to missions for the DOD, SpaceX launches payloads from VSFB for U.S. Government agencies, including NASA and NOAA, and allied foreign nations, including missions that directly benefit environmental monitoring and response.

On May 5, 2023 the Executive Director of the California Coastal Commission concurred with a Negative Determination (ND-0009-23) for the subject project as the activities were similar to those concurred with by the Commission in CD-049-98. In the months following the Executive Director's concurrence, Commission staff stated that public coastal access was being adversely effected through other activities in addition to beach closures: (1) closures of the 14 mile long road between Highway 1 and Jalama Beach to incoming traffic in advance of scheduled SpaceX launches, even when a full closure and evacuation does not occur[3]; (2) email notices to those holding campground reservations during the time of a scheduled SpaceX launch; and (3) website notices to those seeking to secure a campsite reservation during the time of a scheduled SpaceX launch. The CCC stated that these launch activities prevent coastal access and recreation, resulting in cancellations of campsite reservations and limited the number of reservations secured. The CCC also stated that Jalama Beach had exceeded the number of closures analyzed in the Negative Determination. At the December 2023 public hearing, the Commissioners voted to revisit the Negative Determination and requested preparation of a Consistency Determination.

Upon email and phone notification by Commission staff to SLD 30 in summer 2023 regarding potential impacts outside the scope of those covered under the existing ND, SLD 30and SpaceX implemented measures to avoid and reduce future impacts of a similar nature. These measures were implemented well before the December 2023 public hearing and receiving the Remedial Action Proposal in February 2024 and are discussed below.

1. To reduce the potential for evacuations SpaceX shifted launches with trajectories that would typically close the Jalama Beach County Park to nighttime when population levels are lower. Jalama Beach County Park Staff provide the number of people in the park in the hours leading up to launch, after which SLD 30 Range Safety determines if the population level remains at or below

[3] SLD 30 has confirmed with the County of Santa Barbara that the 14-mile-long road between Highway 1 and Jalama Beach only closes during full evacuation due to a launch or when road conditions are poor and unsafe to traverse which happens during rainy seasons that cause sink holes, downed trees and/or power lines. The road closures outside of launch times over the winter of 2022-2023 are related to weather events and unsafe conditions.

the acceptable level for flight safety. If population levels exceed acceptable levels and the number of evacuations previously deemed consistent by the CCC (14; CD-049-98), the launch is then scrubbed (i.e. delayed).

2. SLD 30 coordinated with the County of Santa Barbara to revise the language in the potential evacuation notice emails sent to campers. These emails are sent after contingency evacuation notices are received by the County of Santa Barbara from SLD 30. Example emails from before and after these measures were implemented are included in Appendix C.

Since the introduction of these measures, there has not been an evacuation of Jalama Beach County Park and thus no associated closure of Jalama Road. Additionally, seven contingency evacuation notices (out of 22 launches) have been sent to SBC resulting in email notifications to campers between mid-July 2023 and February 2024. Few campsite reservations (< 1%) have been cancelled because of the contingency evacuation emails (pers comm L. Semenza, 2023). No evacuation emails have been sent between mid-July 2023 and February 2024. These actions have resulted in improved communications and coordination between the DAF, County of Santa Barbara Parks and Recreation, and SpaceX to avoid unnecessary and minimize future potential impacts to public access and recreation and parties' have sought to understand each other's requirements.

1.1 AUTHORITY

This CD is being submitted by the DAF in compliance with the National Oceanic and Atmospheric Administration Federal Consistency Regulations (15 Code of Federal Regulations [C.F.R.] Part 930). The DAF prepared this CD per Section 307(c)(1)(A) of the CZMA (16 USC 1456(c)(1)(A)), as amended, 15 C.F.R. Part 930, and the federally approved California Coastal Management Plan (CCMP) pursuant to the California Coastal Act (CCA) (California Public Resources Code, Division 20.

1.2 DETERMINATION

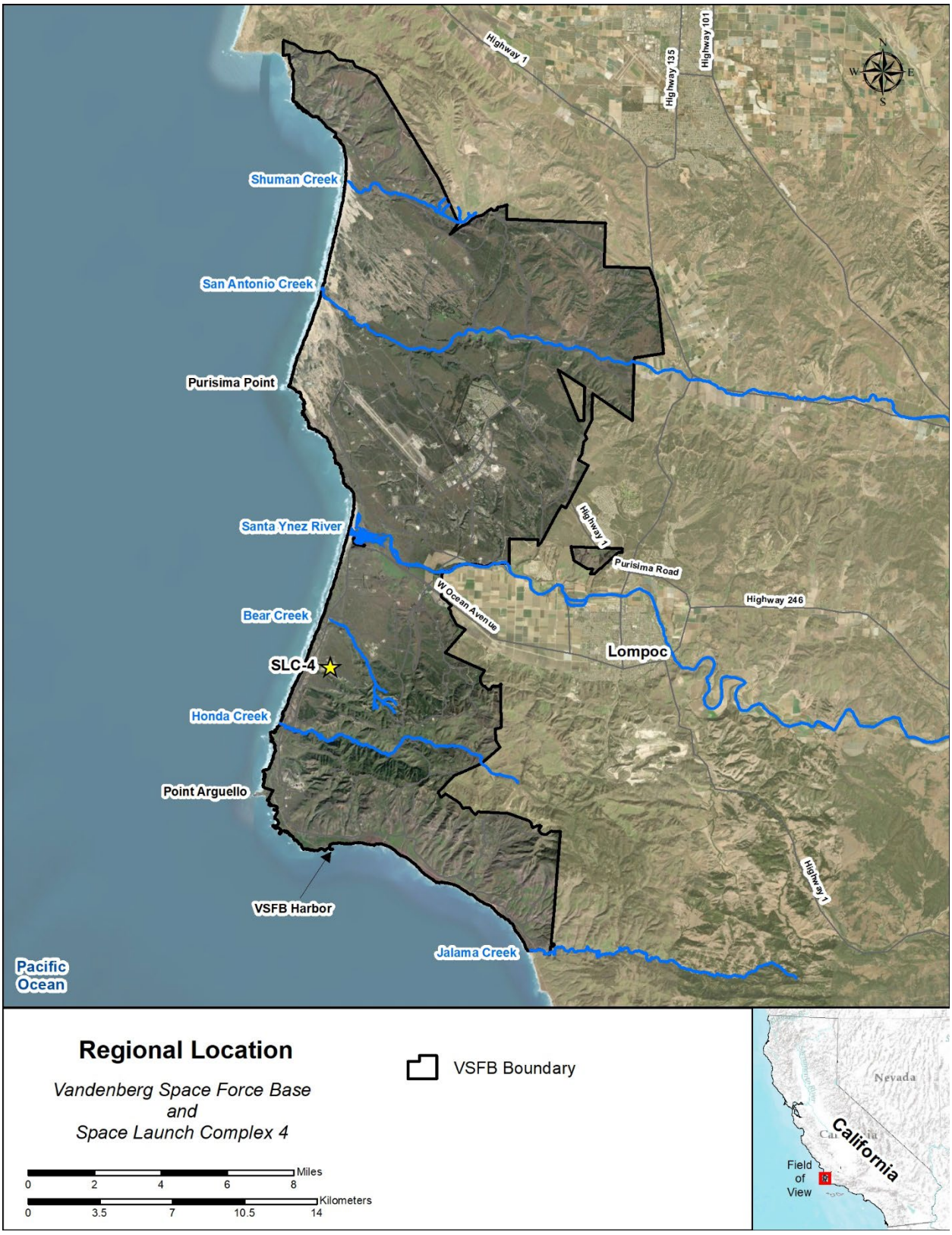
The project launch site (SLC-4) is located within the boundary of VSFB and owned by DOD. Although the CZMA excludes federal lands from the definition of coastal zone, actions that may effect the coastal zone must be consistent to the maximum extent practicable with the enforceable policies of the CCMP. Launch and operations at SLC-4 have been developed to minimize and/or offset potential effects to coastal uses and/or resources consistent to the maximum extent practicable with the enforceable policies of the CCMP. Based on review of the Proposed Action's compliance with the CZMA, the DAF has determined that the Proposed Action is consistent to the maximum extent practicable with the CCMP, pursuant to the requirements of the CZMA.

1.3 CONSULTATIONS WITH OTHER RESOURCE AGENCIES AND TRIBAL ENTITIES

SLD 30 completed Section 7 consultations with the National Marine Fisheries Service (NMFS) and United States Fish and Wildlife Service (USFWS). NMFS provided a Section 7 concurrence letter on January 20, 2023 (WCRO-2023-002). The existing SLD 30 Letter of Authorization issued by NMFS for Level B harassment of marine mammals incidental to launch activities covers the Proposed Action. Formal Section 7 consultation with the USFWS was completed and a Biological Opinion (BO) was issued for the Proposed Action on March 21, 2023 (2017-F-0480). SLD 30 is required to comply with the National Historic Preservation Act and completed Section 106 consultation when the State Historic Preservation Officer (SHPO) elected to let their 30-day review slip, citing 36 Code of Federal Regulations 800.3(c)4, "Failure of the SHPO/THPO [Tribal Historic Preservation Officer] to respond. If the SHPO/THPO fails to respond within 30 days of receipt of a request for review of a finding or determination, the agency official may proceed

to the next step based on the finding or determination or consult with the Council in lieu of the SHPO/THPO." SLD 30 carried out government-to-government consultation with the Santa Ynez Band of Chumash Indians' tribal chairman but received no response within 30 days. Therefore, SLD 30 had no further obligations with either SHPO or THPO for Section 106 consultation.

Figure 1-1: Regional Location of Proposed Action Area

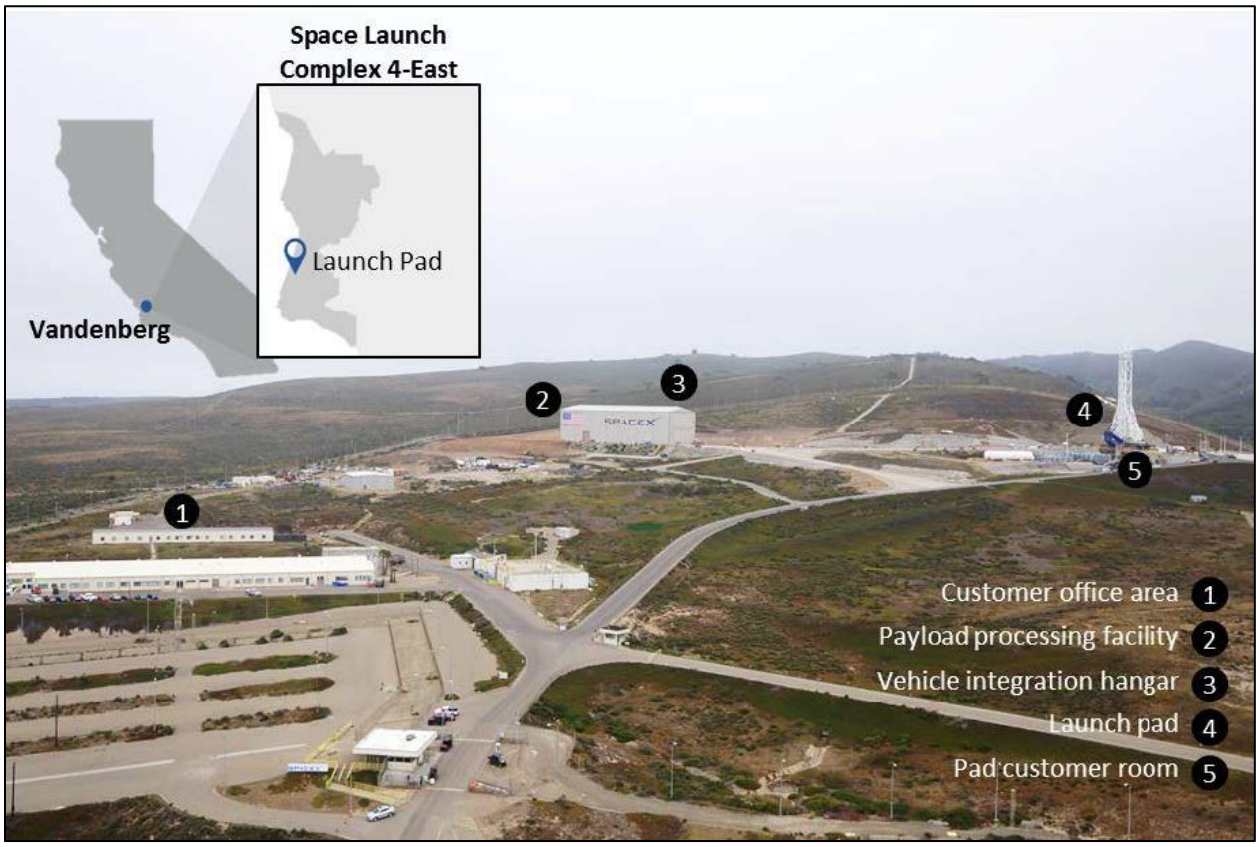


2 DESCRIPTION OF PROPOSED ACTION

2.1 PROPOSED ACTION

The Proposed Action is to increase the Falcon 9 annual launch cadence at VSFB and include additional downrange offshore landing locations in the Pacific Ocean. Under the Proposed Action, SpaceX would launch the Falcon 9 from SLC-4E up to 36 times per year. Following each launch, SpaceX would perform a landing of the first stage up to 36 times, either downrange on a droneship or at SLC-4W at VSFB. No more than 12 first stage landings would occur at SLC-4W per year. Existing infrastructure would be used with no construction activities or ground disturbance planned under the Proposed Action First stage processing protocols associated with the Proposed Action would remain unchanged; however, they would increase in frequency to support 36 launches per year. The following subsections detail the various components of the Proposed Action.

Figure 2-1: Space Launch Complex 4-East



2.1.1 LAUNCH

SpaceX would launch Falcon 9 from SLC-4E up to 36 times per year in the same manner as current launches fully described in in the 2018 *Supplemental Environmental Assessment for Launch, Boost-Back, and Landing of the Falcon 9 at Vandenberg Air Force Base* and ND-0027-15. Each takeoff may be preceded by a static fire test of the engines, which lasts a few seconds. The need to conduct a static fire test is mission dependent, but there would be no more than 36 static fire events per year. Launch operations would occur day or night, at any time during the year. Static fires typically precede launches by 1 to 3 days.

The Proposed Action does not include the closure or alteration of the dimensions (shape and altitude) of the shipping lanes or airspace. When SpaceX launch and reentry operations pose an extreme risk to public safety over navigable waters, United States Coast Guard (USCG) District Eleven has the regulatory authority to restrict vessel transit after all risk mitigating strategies are exhausted. Federal government agencies, including the USCG, are responsible for ensuring maritime safety. SLD 30 would notify USCG of any upcoming launch operations to ensure safe launches over open ocean, consistent with current procedures. The USCG would be responsible for issuing a Notice to Mariners (NOTMARs) that provide hazard area locations prior to each mission event with ocean impacts. A NOTMAR provides notice of temporary changes in conditions or hazards in navigable waterways with maritime traffic to assist in mitigating risks for dangers associated with waterway users. This tool provides both an established and reliable line of communication with the maritime public. The NOTMAR would include the dates and times of the operations and coordinates of the hazardous operation area. Advance notice via Notices to Air Missions (NOTAMs) would assist general aviation pilots in scheduling around any temporary disruption of flight activities in the operation area. Launches would be of short duration and scheduled in advance to minimize the interruption to airspace and waterways. SLD 30 Range Safety monitors the affected area during launch and landing operations. Although marine vessels are informed of the operations, there is no requirement for them to alter their routes or change their navigation speed. If vessels are obstructing a launch or reentry phase of the operations, the launch would be delayed or altered within SLD 30 launch policies.

2.1.2 PAYLOAD FAIRING RECOVERY OPERATIONS

The Falcon 9 vehicle payload system includes a fairing that protects payloads (e.g. satellites). The fairing consists of two halves which separate, allowing the deployment of the payload at the desired orbit. Each fairing half contains a parachute system for recovery, which includes one drogue parachute and one parafoil. Parachutes, parafoils, and their assemblies are made of Kevlar and nylon, and sink quickly as they become waterlogged. The parachute system slows the descent of the fairing to enable a soft splashdown so that the fairing remains intact. The parachute canopy is approximately 110 square feet and the fairing parafoils are approximately 3,000 square feet.

SpaceX would attempt to recover both halves of the fairing after each launch. The fairing and parafoil would be recovered by a salvage ship stationed near the anticipated splashdown site, but no closer than 12 nautical miles offshore. Up to 72 parachutes and 72 parafoils would land in the ocean annually. Fairings, parachutes, and parafoils would land well outside of State jurisdictional and U.S. territorial waters but could land within the U.S. Exclusive Economic Zone. SpaceX would attempt to recover all parafoils, but it is possible that some of the parafoils would not be recovered due to sea or weather conditions at the time of recovery. The recovery team would attempt to recover the parachute assembly if they can get a visual fix on the splashdown location. Because the parachute assembly is deployed at a high altitude, it is difficult to locate. In addition, based on the size of the assembly and the density of the material, the parachute assembly would be saturated and begin to sink. This would make recovering the parachute assembly difficult and unlikely. As a result, SpaceX has experienced limited success in recovering the parachutes but will continue to attempt recovery and improve the success rate. However, most parachutes would be deposited in the ocean.

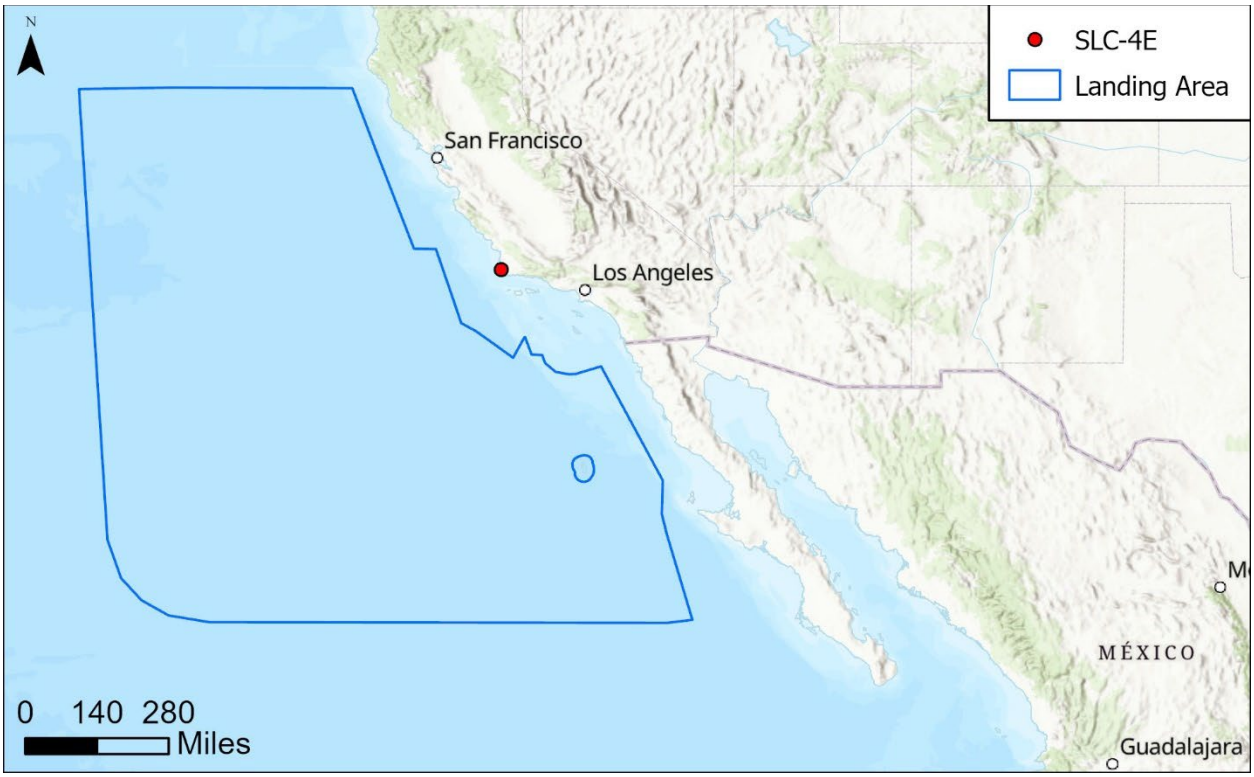
2.1.3 LANDING

SpaceX would perform a landing of the first stage up to 36 times per year, either downrange on a droneship or at SLC-4W at VSFB. Downrange landing locations are shown in Figure 2-2. Landing locations

are specific to each mission. No more than 12 first stage landings would occur at SLC-4W per year. Each landing would produce a sonic boom. While it is SpaceX's goal to re-enter and land all first stage Falcon boosters for reuse, some payloads require additional propellant to reach desired orbits or destinations (due to increased weight or extended trajectory). These boosters would be unable to complete a boost-back burn and landing. As a result, some boosters may be expended in the open ocean, outside of state and federal waters. It should be noted that this is a rare occurrence and is expected to continue to be infrequent – SpaceX has not conducted a mission using an expended booster SLC-4E since 2018.

SpaceX measures wind speed in the landing area using weather balloons. Measurements are taken at various intervals before launch and landing events and are used to create the required profiles of expected wind conditions during the landing event. A radiosonde, which is approximately the size of a shoe box and is powered by a 9-volt battery, is attached to a weather balloon, and transmits data to SpaceX and to predictive systems onboard the vehicle. The balloon, which is made of latex, rises approximately 12 to 19 miles and bursts. The balloon is shredded into many pieces as it falls back to Earth, along with the radiosonde, and is assumed to land in the ocean. The radiosonde does not have a parachute and would not be recovered.

Figure 2-2: Downrange Landing Area



2.1.4 GROUND OPERATIONS, SUPPORT, AND TRANSPORT

SpaceX operations for the Proposed Action would be like those currently occurring. To support the increased cadence, SpaceX may add up to 100 personnel at VSFB. SpaceX would continue to utilize specialized trucks for overland transport and barges for in-water transport of boosters, fairings, and other materials. SpaceX would continue to utilize the VSFB harbor for "roll-on-roll-off" barge operations. SpaceX would continue to process payloads and refurbish boosters and fairings at existing SpaceX facilities on VSFB. Up to 36 boosters and 36 fairings would be refurbished each year under the Proposed Action.

2.2 ALTERNATIVES ANALYSIS

As discussed in Section 2.1 (Selection Criteria) of the Environmental Assessment, SLD 30 identified a range of reasonable alternatives on VSFB and other sites by evaluating the ability of each alternative to meet the purpose and need of the Proposed Action and their ability to meet selection criteria.

- **Criterion 1:** Ability to launch payloads to polar and geostationary orbits
- **Criterion 2:** Proximity to existing SpaceX facilities to support Falcon 9 missions
- **Criterion 3**: Availability to support an increased launch cadence

In accordance with Council on Environmental Quality *Regulations for Implementing the Procedural Provisions of NEPA* (40 C.F.R. Parts 1500-1508), reasonable alternatives for the SpaceX launch program were identified and analyzed but dismissed from detailed analysis as they did not meet the purpose and need of the project. SpaceX and SLD 30 evaluated its existing facilities at Cape Canaveral Space Force Station (CCSFS) and Kennedy Space Center (KSC) for reasonableness. Non-SpaceX sites would not be able to readily provide infrastructure requirements without substantial construction activities and would not support the launch schedule requirements and were therefore not considered.

Space Launch Complex-40 (SLC-40) is a SpaceX-leased launch site located on CCSFS. SLC-40 currently supports Falcon 9 launches. Launch azimuths from SLC-40 support low Earth orbit (LEO), including polar orbits and sun-synchronous orbits, geosynchronous transfer orbit (GTO) and Earth escape orbits. VSFB supports a different range of trajectories than CCSFS, thus SLC-40 was eliminated from further consideration.

Launch Complex-39A (LC-39A) is a SpaceX-leased launch site located at KSC. LC-39A currently supports Falcon 9 and Falcon Heavy launches and is planned to support Starship/Super Heavy launches in the near future. Launch azimuths from LC-39A support LEO, GTO, and Earth escape orbits. The SpaceX launch pad at LC-39A is currently the only location in the world from which NASA can launch astronauts and the only location where SpaceX can launch the Falcon 9 Heavy vehicle. VSFB supports a different range of trajectories than KSC. Accordingly, LC-39A was therefore eliminated from further consideration.

Therefore, these alternatives were also eliminated from further consideration, and only the Proposed Action and No Action Alternative have been carried forward for further evaluation. SLC-4 is an existing launch complex utilized by SpaceX, and the western range operations can support an increased launch cadence and launch payloads to polar and geostationary orbits. Therefore, the Proposed Action meets all selection criteria listed above.

2.3 CONSISTENCY ANALYSIS/ANALYSIS OF EFFECTS

The effects test is a procedure where the project proponent determines whether the proposed activities comply with the federal consistency requirements of Section 307 of the CZMA (16 U.S.C. Section 1456) and its implementing regulations (15 C.F.R. Part 930). As defined in Section 304 of the CZMA, the term “coastal zone” does not include “lands the use of which is by law subject solely to the discretion of or which is held in trust by the Federal Government.” However, since the proposed activities may have an effect on the land, water, or natural resource of a coastal zone off such federal property, as per DAF policy guidance (AFMAN 32-7003, Section 3.26.2), the DAF undertakes federal actions in a manner consistent to

the maximum extent practicable with the enforceable policies[4] of the approved CCMP through the federal consistency process under the CZMA.

The DAF analyzed the effects of the Proposed Action by looking at reasonably foreseeable direct and indirect effects on any coastal use or resource, and by reviewing relevant management program enforceable policies (15 C.F.R. Part 930.33[a][1]) of the CCMP relevant to this Proposed Action, as determined by the DAF, include the following: Article 2 – Public Access (Section 30210, 30213, and 30214); Article 3 – Recreation (Section 30220); Article 4 – Marine Environment (Section 30230, 30231, 30232, 30234, and 30234.5); and Article 5 – Land Resources (Section 30240). Sections and Articles of the CCMP not addressed below are not relevant to the Proposed Action.

Prior to evaluating whether the Proposed Action complies to the maximum extent practicable with the CCMP, the federal agency must first examine whether the Proposed Action would have a reasonably foreseeable effect on coastal zone uses or resources. Thus, the elements of the Proposed Action must first be examined to determine whether they have reasonably foreseeable effects before determining whether those effects are consistent with the State of California's enforceable policies. Coastal zone resources include both resources permanently located in the coastal zone (e.g., benthic organisms) and mobile resources (e.g., marine mammals and sea turtles) that typically move into and out of the coastal zone as part of a natural cycle.

The effects test evaluates the relative location of the Proposed Action to the coastal zone and the potential effects of stressors on coastal zone resources. The DAF conducted the effects test and determined there are reasonably foreseeable effects to coastal uses and resources. The effects test for the Proposed Action is based on the locations of the proposed activities relative to the coastal zone and the potential effects of stressors on coastal zone resources. The Proposed Action at VSFB could have the potential to affect coastal resources from acoustics (launch engine noise and sonic booms).

Potential impacts to public recreation at Jalama Beach County Park due to launch include:

- Contingency Evacuation Email – an email sent by the County of Santa Barbara to reservation holders of campgrounds at Jalama Beach County Park notifying them of a potential upcoming evacuation. Example email attached in Appendix C. Emails are sent several days in advance of the anticipated launch date. Updates are made to the County website.
- Evacuation Email – similar process as above, though text specifies that an evacuation will occur Example email attached in Appendix C. Updates are made to the County website.
- Evacuation – Removal of day-users and campers from Jalama Beach County Park due to safety requirements. Evacuation occurs approximately four hours prior to launch and users are able to return post-launch when the all-clear is issued by SLD 30 Range Safety.
- Road Closure – The closure of Jalama Road between Jalama Beach County Park and Highway 1 to maintain acceptable population levels for flight safety. Santa Barbara County Sheriffs would place roadblocks along Jalama Road to enforce an evacuation or to maintain acceptable maximum visitors to Jalama Beach County Park during a launch operation.

[4] SLD 30 is using the term "enforceable policies" within the meaning contemplated in 15 C.F.R. 930.36. DAF does not concede that all aspects of California's coastal program are enforceable against the federal government.

3 POLICIES OF THE CALIFORNIA COASTAL MANAGEMENT PROGRAM

The DAF reviewed the CCMP to identify the policies relevant to the Proposed Action according to Division 20 of the California Public Resources Code, approved as part of the coastal program. Section 3.1 identifies the CCMP policies that are not relevant to the Proposed Action. Section 3.2 provides an analysis of the CCMP policies that are relevant to the Proposed Action.

3.1 POLICIES OF THE CALIFORNIA COASTAL MANAGEMENT PROGRAM THAT ARE NOT RELEVANT TO THE PROPOSED ACTION

The CCMP policies not applicable to the Proposed Action are provided in Table 3-1 below.

Table 3-1: Policies of the CCMP That Are Not Relevant to the Proposed Action

Article	Section	State Policy	Explanation of Non-Applicability
Article 2: Public Access	30211	Development not to interfere with access	The Proposed Action does not include any construction or ground disturbance, thus would not result in the public's right of access to the sea.
	30212	New development projects	The Proposed Action does not include any construction or ground disturbance.
	30212.5	Public facilities; distribution	The Proposed Action does not include any public facilities.
Article 3: Recreation	30221	Oceanfront land; protection for recreational use and development	The Proposed Action does not include any development of oceanfront land that would reduce available areas for public use.
	30222	Private lands; priority of development purposes	The Proposed Action does not include any development of private lands within the Action Area.
	30222.5	Oceanfront lands; aquaculture facilities; priority	The Proposed Action does not affect coastal zone lands suitable for aquaculture.
	30223	Upland areas	The Proposed Action does not affect the availability of upland areas necessary to support coastal recreational uses.
Article 3: Recreation	30224	Recreational boating use; encouragement; facilities	The Proposed Action does not include the development of any recreational boating facilities.
Article 4: Marine Environment	30233	Diking, filling, or dredging; continued movement of sediment and nutrients	The Proposed Action does not include any diking, filling, or dredging activities.
	30235	Construction altering natural shoreline	The Proposed Action does not include construction or ground disturbance, thus would have no alteration to natural shorelines processes.

Article	Section	State Policy	Explanation of Non-Applicability
	30236	Water supply and flood control	The Proposed Action does not alter any rivers or streams.
	30237	Repealed	
Article 5: Land Resources	30241	Prime agricultural land; maintenance in agricultural production	The Proposed Action does not include construction or ground disturbance, thus would have no impact to prime agricultural lands.
	30241.5	Agricultural lands; determination of viability of uses; economic feasibility evaluation	The Proposed Action does not include construction or ground disturbance, thus would have no impacts to agricultural lands.
	30242	Lands suitable for agricultural use; conversion	The Proposed Action does not include construction or ground disturbance, thus would have no impacts to agricultural lands.
	30243	Productivity of soils and timberlands; conversion	The Proposed Action does not include construction or ground disturbance, thus would have no impacts to timberlands.
	30244	Archaeological or paleontological resources	The Proposed Action does not include construction or ground disturbance, thus would have no impacts archaeological or paleontological resources.
Article 6: Development	30250	Development location; existing developed areas	This policy only applies to actions that require permitting, which cannot be enforced against the DAF. The Proposed Action does not include construction or ground disturbance.
	30251	Scenic and visual qualities	The Proposed Action does not include construction or ground disturbance, thus would not impact coastal scenic or visual qualities.
	30252	Maintenance and enhancement of public areas	The Proposed Action does not include any new development that would require maintenance or enhanced public access to the coast.
	30253	Minimization of adverse impacts	The Proposed Action does not include development in areas of high geologic, flood, and fire hazard.
	30254	Public works facilities	The Proposed Action does not include any new or expanded public works facilities.
	30254.5	Terms or conditions on sewage treatment plant development; prohibition	The Proposed Action does not include the development of a sewage treatment plant.

Article	Section	State Policy	Explanation of Non-Applicability
	30255	Priority of coastal-dependent developments	The Proposed Action does not include any development within the coastal zone.
Article 7: Industrial Development	30260	Location or expansion	The Proposed Action does not include the development of coastal-dependent industrial facilities.
	30261	Tanker facilities; use and design	The Proposed Action does not include the use of existing or new tanker facilities.
	30262	Oil and gas development	The Proposed Action does not include any oil and gas development.
	30263	Refineries or petrochemical facilities	The Proposed Action does not include new or expanded refineries or petrochemical facilities.
	30264	Thermal electric generating plants	The Proposed Action does not include new or expanded thermal electric generating plants.
	30265	Legislative findings and declarations; offshore oil transport	This section explains the legislative findings applicable to offshore oil transportation, and does not constitute a separate public access policy.
	30265.5	Governor or designee; co-ordination of activities concerning offshore oil transport and refining; duties	The Proposed Action does not include activities concerning offshore oil transport and refining.
Article 8: Sea Level Rise	30270	Sea level rise	The Proposed Action does not include activities at risk of sea level rise.

3.2 POLICIES OF THE CALIFORNIA COASTAL MANAGEMENT PROGRAM THAT ARE RELEVANT TO THE PROPOSED ACTION

The CCMP policies that are relevant to the Proposed Action are policies where one or more of the Proposed Action components could affect a coastal use or resource identified by the policy. The CCMP policies that are relevant to the Proposed Action are provided in Table 3-2.

Table 3-2: Policies of the CCMP That Are Relevant to the Proposed Action

Article	Section	State Policy
Article 2: Public Access	30210	Access; recreational opportunities; posting
	30213	Lower cost visitor and recreational facilities; encouragement and provision; overnight room rentals
	30214	Implementation of public access policies; legislative intent
Article 3: Recreation	30220	Protection of certain water-oriented activities
Article 4: Marine Environment	30230	Marine resources; maintenance
	30231	Biological productivity; water quality
	30232	Oil and hazardous substance spills
	30234	Commercial fishing and recreation boating facilities
	30234.5	Economic, commercial, and recreational importance of fishing
Article 5: Land Resources	30240	Environmentally sensitive habitat areas; adjacent developments

3.2.2 ARTICLE 2: PUBLIC ACCESS

Policies

CCA Section 30210 – "Access; recreational opportunities; posting" states:

> *In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.*

CCA Section 30213 – "Lower cost visitor and recreational facilities; encouragement and provision; overnight room rentals" states:

> *Lower cost visitor and recreational facilities shall be protected, encouraged, and, where feasible, provided. Developments providing public recreational opportunities are preferred. The commission shall not: (1) require that overnight room rentals be fixed at an amount certain for any privately owned and operated hotel, motel, or other similar visitor-serving facility located on either public or private lands; or (2) establish or approve any method for the identification of low or moderate income persons for the purpose of determining eligibility for overnight room rentals in any such facilities.*

CCA Section 30214 – "Implementation of public access policies; legislative intent" states

> *The public access policies of this article shall be implemented in a manner that takes into account the need to regulate the time, place, and manner of public access depending on the facts and circumstances in each case including, but not limited to, the following: (1) Topographic and geologic site characteristics. (2) The capacity of the site to sustain use and at what level of intensity. (3) The appropriateness of limiting public access to the right to pass and repass depending on such factors as the fragility of the natural resources in the area and the proximity of the access area to adjacent residential uses. (4) The need to provide for the management of access areas so as to protect the privacy of adjacent property owners and to protect the aesthetic values of the area by providing for the collection of litter. (b) It is the intent of the Legislature that the public access policies of this article be carried out in a reasonable manner that considers the equities and that balances the rights of the individual property owner with the public's constitutional right of access pursuant to Section 4 of Article X of the California Constitution. Nothing in this section or any amendment thereto shall be construed as a limitation on the rights guaranteed to the public under Section 4 of Article X of the California Constitution. (c) In carrying out the public access policies of this article, the commission and any other responsible public agency shall consider and encourage the utilization of innovative access management techniques, including, but not limited to, agreements with private organizations which would minimize management costs and encourage the use of volunteer programs.*

Consistency Review

The DAF controls access to VSFB and on-Base recreation areas. Public access to VSFB is not permitted. Personnel and approved contractors may participate in outdoor activities on VSFB, such as camping, picnicking, sunbathing, hiking, bird watching, nature photography, fishing, and hunting. The closest public access beaches are Jalama Beach County Park, Surf Beach (federal property), and County of Santa Barbara Ocean Beach Park. Of these, Jalama Beach County Park is the only one with overnight accommodations, including 107 campsites (31 of which with electrical hookups) and seven equipped cabins.

For the safety of park visitors, the County Parks Department and the County Sheriff currently close the parks upon request from the DAF. This agreement outlines procedures to evacuate (i.e., close) Jalama Beach County Park, Ocean Beach County Park, Surf Beach, and Point Sal Road, in the event of launch activities that have been determined by SLD 30 Range Safety to have certain human health and safety risks. These evacuations are communicated at least 72 hours prior to evacuation and can be implemented a maximum of 48 hours per the agreement. Point Sal Road is not anticipated to be evacuated due to SpaceX launches.

In the past, SLD 30 has restricted access to Ocean Beach County Park and Surf Beach for all launches from SLC-4E. Based on updated modeling and safety considerations, SLD 30 Range Safety and the Security Forces Squadron have determined evacuations are only required if the first stage of the Falcon 9 launch vehicle will boost back to land at SLC-4W. This action by DAF has resulted in a net-benefit to public access in northern Santa Barbara County. In addition to the parks remaining open, launch viewing opportunities attract more people to the coast thus providing coastal access to a larger number of users.

Access to the coastline from Surf Beach is available year-round. During the western snowy plover season, beach access is available from 0800-1800 and restricted during evening hours from 1800-0800. Access to the coastline from Ocean Beach County Park is available via a trail on federal property established by SLD 30 connecting this area to the coastal access available at nearby Surf Beach. Ocean Beach County Park is open from 0800 to dusk year-round. A portion of launches that boost back to land at SLC-4W would occur at night when these two locations are already closed. Accordingly, the Proposed Action would only restrict public access to Ocean Beach County Park and Surf Beach during daytime launches with boost back to SLC-4W. For this analysis, DAF assumes that Surf Beach and Ocean Beach County Park could be evacuated up to 14 times per year, including from scrubbed launches, for approximately four to eight hours each launch attempt.

Impacts to coastal access and recreation at Jalama Beach County Park are dependent on risk analysis completed by SLD 30 Range Safety for each individual launch. The launch risk factors are estimated based on the probability of vehicle failure, population size in the high-risk area, day of launch weather, trajectory, and other factors. SLD 30 Range Safety considers the number of people within the Impact Limit Line and thirty days prior to launch, conducts prelaunch debris risk assessments that determine high risk areas that contribute to the allowable risk criteria. If the risk of a Conditional Expected Casualty (CEc; a factor that estimates the risk of a multiple casualty event and assumes 100% vehicle failure) is greater than 0.01, Individual Risk is greater than 1/1,000,000, or the Expected Casualty risk is greater than 1/10,000, SLD 30 issues an evacuation requirement letter 25 days prior to launch. Generally, for launches from south VSFB, the population size in the Impact Limit Line determines the need for evacuation of Jalama Beach County Park and a CEc greater than 0.01 is typically triggered when the population exceeds 500. Therefore, the number of users, including day users, campers, and staff, at Jalama Beach County Park may or may not exceed a level that triggers evacuation.

If evacuation is under consideration, SLD 30 notifies the County of Santa Barbara. The County then sends a contingency evacuation email (Appendix C) to reservation holders warning them that there may be a need to evacuate the park for the launch and providing them the opportunity to cancel the reservation. During early 2023 and before, only a full evacuation email was sent to reservation holders, this resulted in 3 to 4 reservations (typically 1 to 3, but up to 8 people maximum per site/reservation) typically being cancelled for each launch after the email announcement (L. Semenza, County of Santa Barbara, pers. comm.). In August 2023, SLD 30 and the County of Santa Barbara implemented improved messaging protocols to warn the public of potential evacuations at Jalama Beach County Park by implementing a

Contingency Evacuation Email (Appendix C). Santa Barbara County Parks and Recreation stated that after implementation of the new notification procedures, cancellations have become rarer, typically zero to one per launch (L. Semenza, County of Santa Barbara, pers. comm.). The DAF and SpaceX have also minimized impacts at Jalama Beach by shifting to launching during hours of darkness, discussed in more detail in the following paragraphs.

When an evacuation of Jalama Beach County Park is under consideration, Santa Barbara County reports the projected number of campers for day of launch two to three days prior to the launch date. SLD 30 Range Safety compares the report to the maximum allowable number of people that would exceed the risk criteria and, if this number is exceeded, they will confirm the evacuation; if the population is less, the evacuation notice is rescinded. When an evacuation is confirmed, park staff request that all campers and day users leave the park. In addition, the Santa Barbara County Sheriff places roadblocks at the intersection of Highway 1 and Jalama Road to prevent the public from entering the affected area.

SpaceX flies a variety of trajectories from VSFB to support a wide range of missions, thus increasing to 36 launches per year does not mean that all 36 launches would be a trajectory that impacts Jalama Beach County Park. VSFB supports a unique range of trajectories, including launches to polar orbits, that are not available or practicable from Cape Canaveral Space Force Station. Additionally, as launch vehicles become more reliable (e.g. a proven record of flight), impact limit lines decrease. The Commission has historically considered and analyzed the number of temporary evacuations to beaches in northern Santa Barbara County associated with launch activities and determined that a total of 14 evacuations per year is consistent with the public access and recreation policies of the CCMP. A launch attempt that could evacuate Jalama Beach County Park could be scrubbed due to weather, an issue with the vehicle, or another reason after an evacuation order has been issued. While some impacts to Jalama Beach County Park are unavoidable due to mission requirements, evacuations would not be issued for more than 14 launches, to remain consistent with previous CCC determinations (CD-049-98).

As previously stated, to reduce the potential for evacuations SpaceX has shifted launches with trajectories that would typically close the park to nighttime, when population levels are lower. Jalama Beach County Park Staff provide the number of people in the park in the hours leading up to launch, after which SLD 30 Range Safety determines if the CEc remains at or below the acceptable level. If population levels exceed acceptable risk criteria, the launch would be delayed to the following day and population levels reassessed to ensure total evacuations of Jalama Beach County Park do not exceed 14 per year. This delay process is known as scrubbing. There has not been an evacuation of Jalama Beach County Park since these procedures were implemented in summer 2023. While there is a substantial financial impact to launching at less-optimal times, the DAF will maintain these procedures when practicable to protect public access to Jalama Beach County Park. DAF and SpaceX evaluated a ‘dog leg’ trajectory to avoid impacting Jalama Beach County Park. However, this trajectory would result in a significant performance hit to the vehicle due to the maneuver reducing the total mass able to be placed into orbit, thus requiring more launches to place the same amount of mass into orbit. Additionally, this could preclude certain missions from launching due to the mass of the payload.

DAF recognizes that potential evacuation notices can deter public access, through cancellation of scheduled reservations and/or fewer people making daily trips to Jalama Beach County Park. DAF will continue to coordinate with Santa Barbara County Parks and Recreation to better inform the public of potential evacuations. To offset impacts to recreational access to the coast at Jalama Beach County Park due to past unaccounted for impacts and for potential impacts to future launch operations, SpaceX would conduct the following measures:

- SpaceX would donate high-speed Starlink terminals to provide public internet coverage at Jalama Beach County Park. Cellular phone service in the area is limited, thus providing reliable internet coverage can benefit emergency responders and provide overnight campers with reliable connectivity. Santa Barbara County Parks and Recreation stated that implementation of Starlink terminals at the park gate would enhance public access, as the existing online reservation system can be slow and causes congestion and/or delays during the check in process at the controlled entrance as users enter the park (L. Semenza, County of Santa Barbara, pers. comm.).
- SpaceX would fund a variable messaging sign for use by Santa Barbara County Parks and Recreation to replace the existing sign at the intersection of Highway 1 and Jalama Road, enabling the County to inform the public if there is availability prior to driving down Jalama Road to the park.

DAF and SpaceX would continue to implement the following minimization measures previously discussed to reduce potential evacuations of Jalama Beach County Park

- To reduce the potential for evacuation, SpaceX shifted launches with trajectories that would typically close the Jalama Beach County Park to nighttime, when population levels are lower. Jalama Beach County Park Staff provide the number of people in the park in the hours leading up to launch, after which SLD 30 Range Safety determines if the population level remains at or below the acceptable level for flight safety.
- If population levels at Jalama Beach exceed acceptable thresholds for flight safety during launches scheduled during hours of darkness and the number of evacuations previously deemed consistent by the CCC, the launch would be scrubbed (i.e. delayed) rather than require evacuation.
- SLD 30 and Santa Barbara County would continue to utilize improved messaging protocols to warn the public of potential evacuations at Jalama Beach County Park.

Santa Barbara County also indicated that a point of frustration for the public is not knowing whether the park or campground is full until they drive the length of Jalama Road and are forced to turn back if full. Adding the variable message sign at Highway 1 that could be updated using the Starlink internet connection, would allow real-time updates to be made by park staff and reduce frustration and unnecessary time and fuel to drive from Highway 1 to Jalama Park.

Through the implementation of offsets discussed above, the Proposed Action would not substantially diminish the protected activities, features, or attributes of Jalama Beach County Park.

A summary of these offset executed measures and results would be included in DAF's annual report to the CCC. The Proposed Action would be consistent to the maximum extent practicable with Sections 30210, 30213, and 30214 of the CCA.

3.2.3 ARTICLE 3: RECREATION

Policies

CCA Section 30220 – "Protection of certain water-oriented activities" states:

> *Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.*

Consistency Review

Recreational and commercial boating and fishing occurs offshore of VSFB; however, impacts on offshore activities are unlikely other than temporary avoidance areas established during launch activities.

Temporary avoidance areas for security and safety would not limit public access to adjacent areas. Areas would only be closed for the duration of the launch activity. The U.S. Coast Guard (USCG) would issue a NOTMAR that defines a public ship avoidance area for launch events. The avoidance area would be lifted as soon as the USCG determines it is safe to do so. Temporary closures of these areas for security and safety do not limit public access to or use of adjacent areas. Areas would be closed for the duration of the activity and reopened at the completion of the activity. A more detailed discussion of NOTMARs and maritime closures is included in Section 3.2.6.

Due to the temporary and short-term duration of the activities (36 launches from SLC-4 annually), broadcasting of NOTMARs, and the expansive offshore area that would still be available to the public, accessibility impacts associated with water-oriented recreational activities would remain negligible. Therefore, the Proposed Action would be consistent to the maximum extent practical with Section 30220 of the CCA.

3.2.4 ARTICLE 4: MARINE ENVIRONMENT (MARINE RESOURCES)

Policies

CCA Section 30230 – "Marine resources; maintenance" states:

> *Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.*

Consistency Review

As shown in Table 3-3, there are five species that occur in the marine environment off the VSFB coastline. One is federally listed as threatened under the Endangered Species Act (ESA) and four species are protected as defined under the Marine Mammal Protection Act (MMPA). The DAF determined these species may be potentially affected by the Proposed Action from noise impacts during operation.

Table 3-3: Determination of Potential Impacts to Marine Mammals

Species	Status	ESA Effects Determination	MMPA Determination
Southern sea otter (*Enhydra lutris nereis*)	FT	NLAA	NE
Steller sea lion - Eastern U.S. Stock (*Eumetopias jubatus*)	MMPA	NA	Level B
Northern elephant seal – California Breeding Stock (*Mirounga angustirostris*)	MMPA	NA	Level B
Pacific harbor seal – California Stock (*Phoca vitulina richardii*)	MMPA	NA	Level B
California sea lion – U.S. Stock (*Zalophus californianus*)	MMPA	NA	Level B

Notes: FE = Federally Endangered Species; FT = Federally Threatened Species; MMPA = Marine Mammal Protection Act, NA = not applicable; NE = no effect; NLAA = May affect, not likely to adversely affect; ESA = Endangered Species Act, MMPA = Marine Mammal Protection Act

In addition, there are up to 5 sea turtle species, 7 mysticetes (baleen whales), and 22 odontocetes (toothed cetaceans) that may be found within the region of influence. Sea turtles and cetaceans spend their entire lives in the water and spend most of their time (>90% for most species) entirely submerged below the surface. Additionally, when at the surface, sea turtle and cetacean bodies are almost entirely below the water's surface, with only the blowhole or head exposed for breathing. This minimizes exposure to in-air noise, both natural and anthropogenic, essentially 100% of the time because their ears are nearly always below the water's surface. As a result, in-air noise caused by sonic boom and engine noise would not affect sea turtle or cetacean species. Therefore, they were not considered further in the Environmental Assessment and are not considered further in this CD.

Southern Sea Otter (*Enhydra lutris nereis*)

Direct Impacts. No ground disturbing activities or vegetation management activities would occur within southern sea otter habitat; therefore, these actions will have no effect on the southern sea otter. The potential effects of noise and visual disturbance are discussed below.

Noise and Visual Impacts. Areas present directly offshore of SLC-4 would receive visual disturbance and noise levels of less than 130 dB Lmax during a Falcon 9 launch, approximately 110 dB Lmax during a first stage landing at SLC-4W. During static fire events, noise directly off the coast of SLC-4 would be less than 125 dB Lmax and there would be no associated visual disturbance. Landing at SLC-4W would also generate a sonic boom directly offshore that would range from 1.0 to 5.0 psf. Noise levels would reach between 100 and 110 dB Lmax during a Falcon 9 launch and less than 80 dB Lmax during first stage landing at SLC-4W in these areas. Sonic booms during SLC-4W landing would range from 1.0 to 3.0 psf along Sudden Flats.

Exceptionally little sound is transmitted between the air-water interface; thus, in-air sound would not have a significant effect on submerged animals (Godin 2008). In addition, according to Ghoul & Reichmuth (2014), "Under water, hearing sensitivity [of sea otters] was significantly reduced when compared to sea lions and other pinniped species, demonstrating that sea otter hearing is primarily adapted to receive airborne sounds." This study suggested that sea otters are less efficient than other marine carnivores at extracting noise from ambient noise (Ghoul & Reichmuth 2014). Therefore, the potential impact of underwater noise caused by in-air sound would be insignificant and discountable.

Extensive launch monitoring has been conducted for sea otters on both north and south VSFB, with pre- and post-launch counts and observations conducted at rafting sites immediately south of Purisima Point for numerous Delta II launches from SLC-2 and one Taurus launch from Launch Facility-576E and at the rafting sites near Sudden Flats for two Delta IV launches from SLC-6. Monitoring has also been conducted for Falcon 9 launch operations from SLC-4. No abnormal behavior, mortality, or injury of effects on the population has ever been documented for sea otter because of launch-related disturbance.

A prior study suggests that sea otters may be able to acclimate to sound exposures more than those anticipated due to the Proposed Action. Davis et al. (1988) conducted a study of northern sea otter's (*Enhydra lutris kenyoni*) reactions to various underwater and in-air acoustic stimuli. The purpose of the study was to identify a means to move sea otters away from a location in the event of an oil spill. Anthropogenic sound sources used in this behavioral response study included truck air horns and an acoustic harassment device (10 to 20 kHz at 190 dB) designed to keep dolphins and pinnipeds from being caught in fishing nets. The authors found that the sea otters often remained undisturbed and quickly became tolerant of the various sounds. When a fleeing response occurred because of the harassing sound,

sea otters generally moved only a short distance (328 to 656 ft [100 to 200 m]) before resuming normal activity (Davis et al. 1988).

Curland (1997), studying the southern sea otter, also found that they may acclimate to disturbance. The author compared otter behavior in areas with and without human-related disturbance (e.g., kayaks, boats, divers, planes, sonic booms, and military testing at Fort Ord) near Monterey, California. Otters spent more time traveling in areas with disturbance compared to those without disturbance; however, there was no significant differences in the amount of time spent resting, foraging, grooming, and interacting, suggesting that the otters were becoming acclimated to regular disturbances from a variety of sources (Curland 1997). Extensive launch monitoring of sea otters on VSFB has shown that launch noise is not a primary driver of sea otter behavior or use of the habitat along Sudden Flats and has not had any apparent long-term consequences for populations, potentially indicating that this population has acclimated to launch activities. Therefore, any impacts because of noise or visual disturbance are expected to be limited to minor behavioral disruption and, therefore, insignificant. As such, VSFB has determined that the Proposed Action would have an insignificant impact on otters and therefore, may affect, but is not likely to adversely affect, the southern sea otter off the coast of VSFB.

Conclusion. Observations at VSFB have shown no abnormal behavior, mortality, or injury of otters during launch activities and noise studies have shown southern sea otters adapt to sound exposure. As a result, the Proposed Action would have an insignificant effect on southern sea otter. Therefore, VSFB has determined that the Proposed Action may affect, but is not likely to adversely affect, the southern sea otter and, therefore, would not be significant.

Marine Mammals Protected under the MMPA

Under the MMPA, the NMFS issued a Final Rule for taking marine mammals incidental to VSFB launches (NMFS 2019a), and a Letter of Authorization (LOA; NMFS 2019b). The LOA allows launch programs to unintentionally take small numbers of marine mammals during launches. The SLD 30 is required to comply with the LOA listed conditions and address NMFS concerns regarding marine mammals at VSFB. SLD 30 will continue to adhere to the measures list in the most current LOA. Under the current LOA, monitoring of marine mammals at VSFB is required during launches under the following:

- For any launches of space launch vehicles or recoveries of the Falcon 9 First Stage occurring from January 1 through July 31, pinniped activity at VSFB must be monitored in the vicinity of the haulout nearest the launch platform, or, in the absence of pinnipeds at that location, at another nearby haulout, for at least 72 hours prior to any planned launch, and continue for a period of time not less than 48 hours subsequent to the launch and/or recovery.
- For any recoveries of the Falcon 9 First Stage occurring from August 1 through December 31 that are predicted to result in a sonic boom of 1.0 pounds per square foot (psf) or above at VSFB, pinniped activity at VSFB must be monitored in the vicinity of the haulout nearest the launch or landing platform, or, in the absence of pinnipeds at that location, at another nearby haulout, for at least 72 hours prior to any planned launch, and continue for a period of time not less than 48 hours subsequent to launching.
- For any launches or Falcon 9 First Stage recoveries, if it is determined by modeling that a sonic boom of greater than 2.0 psf is predicted to impact one of the Northern Channel Islands between March 1 and July 31, greater than 3.0 psf between August 1 and September 30, and greater than 4.0 psf between October 1 and February 28, pinniped activity at the Northern Channel Islands must be monitored. Monitoring must be conducted at the haulout site closest to the predicted

sonic boom impact area, or, in the absence of pinnipeds at that location, at another nearby haulout.

Direct Impacts. No ground disturbing activities or vegetation management activities would occur within the habitat of marine mammals; therefore, these actions would not exceed Level B harassment to marine mammals, as authorized by NMFS, including during harbor operations.

Noise Impacts. Noise and visual disturbance can cause variable levels of disturbance to pinnipeds that may be hauled out within the areas of exposure, depending on the species exposed and the level of the sonic boom. NMFS has previously determined that the only potential stressors associated with the specified activities that could cause harassment of marine mammals (i.e., rocket engine noise, sonic booms) only have the potential to result in harassment of marine mammals that are hauled out of the water (NMFS 2019a). As a result, not all Falcon 9 first stage recoveries are expected to result in harassment of marine mammals. First stage recoveries throughout most of the proposed landing area will not result in landing engine noise or sonic booms greater than 1.0 psf impacting mainland or islands. The DAF has monitored pinnipeds during launch-related sonic booms on the Northern Channel Islands (NCI) during numerous launches over the past two decades and determined that there are generally no significant behavioral disruptions caused to pinnipeds by sonic booms less than 1.0 psf.

Launch monitoring per the requirements in the current LOA has found that generally only a portion of the pinnipeds present tend to react to sonic booms. Reactions between species are different; harbor seals and California sea lions tend to be more sensitive to disturbance and may react by entering the water while northern elephant seals raise their head or have no reaction. Normal behavior and numbers of hauled out pinnipeds typically return to normal within 24 hours or less (often within minutes) after a launch event. The DAF has monitored pinnipeds on VSFB and the NCI during many launches to characterize the effects of noise and visual disturbance on pinnipeds during numerous launches over the past two decades and determined there are generally no substantial behavioral disruptions or anything more than temporary affects to the number of pinnipeds hauled out on VSFB and the NCI. Monitoring has not found additional or new effects on marine mammals as launch cadence at VSFB has increased – under the terms of the LOA, DAF conducts monitoring commiserate with the number of lunches and thus is monitoring more often each year. No observations of injury or mortality to pinnipeds during monitoring have been attributed to past launches. As a result, the Proposed Action's potential impacts on MMPA-protected pinnipeds are expected to be limited to brief behavioral reactions.

MMPA-protected marine mammals have the potential to be disturbed during roll-on-roll-off barge operations. However, we do not anticipate adverse effects because Environmental Protection Measures, including entering the harbor to the extent possible at high tides when pinnipeds are not present, limiting and restricting nighttime activities and using artificial lighting, and slowly starting any noisy activities, would help minimize and avoid any behavior disruptions.

Given the authorizations and Environmental Protection Measures in place (as described in Appendix A, Section A.3, Marine Biological Resources), including the required monitoring, the Proposed Action would not result in significant impacts on MMPA protected pinnipeds.

Consistency Review Conclusion

The DAF and USFWS completed formal consultation for impacts resulting from the Proposed Action that may affect but are not likely to adversely affect the southern sea otter. The DAF will comply with the existing LOA issued by NMFS for Level B Harassment (behavioral disruption) of marine mammals and will implement necessary monitoring and mitigation activities to protect marine mammal species.

The DAF has determined that the Proposed Action would not result in population-level impacts on any marine resources and biological productivity of coastal waters would be maintained for long-term commercial, recreational, scientific, and educational purposes. Therefore, the Proposed Action would be consistent to the maximum extent practicable with Section 30230 of the CCA.

3.2.5 ARTICLE 4: MARINE ENVIRONMENT (WATER QUALITY)

Policies

CCA Section 30231 – "Biological productivity; water quality" states:

> *The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.*

CCA Section 30232 – "Oil and hazardous substance spills" states:

> *Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur.*

Consistency Review

Effects of the Proposed Action on marine biological resources are addressed in Section 3.2.3 (Article 4: Marine Environment [Biological Productivity]) with regard to CCA Sections 30230 and 30231 and terrestrial biological resources are addressed in Section 3.2.6 (Article 5: Land Resources) with regard to CCA Section 30240(b). The analysis determined that the Proposed Action would not affect biological productivity in the coastal zone, and the Proposed Action is consistent with Sections 30230, 30231, and 30240(b) to the maximum extent practicable.

The Proposed Action would result in potential impacts on surface water, groundwater quality, and water supply associated with launch activities. This section will evaluate potential effects on water quality for consistency with the CCA Section 30231 and 30232.

Wetlands

The Proposed Action does not involve construction or ground disturbance, therefore there would no impacts to wetlands.

Surface Water

The Proposed Action does not involve construction or ground disturbance, therefore there would be no filling of surface waters. Water-usage from the San Antonio Creek Basin would increase to 19.5 ac-ft of water per year, representing approximately 0.7 percent of the total annual water usage at VSFB.

Launch activities at SLC-4 would create exhaust clouds; however, Falcon does not use solid fuels. Wastewater discharges that may occur during project activities, including accumulated stormwater and non-stormwater discharges, would continue to be managed in accordance with the Regional Water Quality Control Board (RWQCB) letter for Enrollment in the General Waiver of Waste Discharge

Requirements for SLC-4E Process Water Discharges. After a launch, approximately 9,000 gallons of deluge water per Falcon 9 launch would remain in the existing retention basin after evaporation. Samples of the deluge water would be collected and analyzed. If the water is clean enough to go to grade, it would be discharged from the retention basin via the spray field. Currently, the water can be discharged to grade via the spray field approximately 90-95% of the time. It would then percolate into the groundwater system and flow down gradient into Spring Canyon. Therefore, impacts to surface water from launch operations under the Proposed Action would not be significant.

Commercial space companies are independently responsible for compliance to provisions of the Clean Water Act and its requirements for development of site-specific Spill Prevention, Contingency, and Countermeasures (SPCC) plan under 40 C.F.R. 112. Inspection and enforcement of each SPCC and any permitted tanks are delegated to the Santa Barbara County Certified Unified Programs Agency. The SPCC requirements for commercial space companies do not fall under the jurisdiction of SLD 30. SpaceX maintains and operates under an SPCC with Santa Barbara County CUPA. Under 40 C.F.R. 112, the SPCC includes elements that the Commission considers critical for these plans, including: an oil spill risk and worst-case scenario spill assessment, response capability analysis of the equipment, personnel, and strategies (both on-site and under contract) capable of responding to a worst-case spill, including alternative response technologies, oil spill preparedness training and drills, and evidence of financial responsibility demonstrating capability to pay for costs and damages from a worst-case spill. SpaceX's secondary containment is sized to capture all materials contained within any tanks present and the SPCC includes the necessary specifications on the spill response supplies needed at the site during operations.

Marine Debris

As discussed above, it is SpaceX's goal to land and recover all first-stage boosters for reuse. However, due to mission requirements (e.g., missions that require all available propellant due to heavier payloads or higher energy orbits), on rare occasions boosters may be unable to complete a boost-back burn and landing and would be expended in the broad open ocean well outside of State jurisdictional waters. When a first stage booster is intentionally expended, the first stage is expected to break up upon atmospheric reentry, and any residual fuel is dispersed and evaporated such that there's none left when the vehicle debris hits the ocean. Upon impact with the ocean's surface, the inert vehicle debris is expected to sink, like the fate of traditional non-reusable first stage boosters. However, these boosters would not have the potential to affect coastal water resources because they are made of inert materials that would not impact water quality, and they would be expended well outside of the coastal zone. SpaceX has not conducted an expendable booster mission from SLC-4E since 2018.

SpaceX attempts to recover potential debris where practicable. However, due to weather conditions, sea state, or other factors, a recovery attempt may be unsuccessful. SpaceX successfully completed all landing attempts in 2023, all attempted fairing recoveries (180 fairing halves) in both the Pacific and Atlantic Oceans and recovered approximately 75 percent of parafoils in the Pacific Ocean. Fairings, parachutes, and parafoils would land well outside of State jurisdictional and U.S. territorial waters but could land within the U.S. Exclusive Economic Zone. The fairings, parachutes/parafoils and their assemblies are all inert.

Weather balloons are 100% biodegradable and would split into pieces and quickly sink, along with the plastic radiosonde within State jurisdictional waters. Both the weather balloon and radiosonde are inert.

SpaceX's recovery efforts have reduced marine debris by approximately 74,804 lbs per launch. If SpaceX's 2022 payload manifest for missions originating from SLC-4E was launched using expendable boosters and

fairings, as all other launch providers currently operate, approximately 972,452 lbs of debris would have been deposited in the broad open water of the Pacific Ocean. For 2022 missions originating from VSFB, SpaceX achieved a 54 percent recovery rate for parafoils and recovered three drogue parachutes. SpaceX improved upon the parafoil recovery rate in 2023, recovering approximately 75 percent of all parafoils. These recovery efforts have reduced marine debris by approximately 99.8 percent compared to a traditional launch provider. The continued recovery of the vast majority of the first stage and fairings offsets the rare occurrence that an ocean landing would occur.

To offset impacts from marine debris within State jurisdictional waters, SpaceX participates in the SLD 30 Adopt-A-Beach Program, which conducts quarterly beach cleanups at Surf Beach. SpaceX also proposes to make an annual contribution to the California Lost Fishing Gear Recovery Project to offset the impacts from unrecoverable debris within State or Federal jurisdictional waters. Under nominal conditions, the first stage, fairing halves, parachutes, and parafoils impact the ocean well outside of State or Federal jurisdictional waters. For every pound of unrecovered debris landing in State or Federal jurisdictional waters, SpaceX would make a compensatory donation of $10.00 in a lump sum payment in the first quarter of the following year. SpaceX would provide annual reports on recovery efforts to DAF.

Ground Water

The Proposed Action does not involve construction or ground disturbance. At a maximum cadence of 36 launches per year, including static fires and landings, the Proposed Action, including water to support personnel and operational activities, would use up to 19.5 acre-feet of water per year.

Wastewater discharges that may occur during project activities, including accumulated stormwater and non-stormwater discharges, would continue to be managed IAW the RWQCB letter for Enrollment in the General Waiver of Waste Discharge Requirements for SLC-4E Process Water Discharges. After a launch, approximately 9,000 gallons of deluge water per Falcon 9 launch would remain in the existing retention basin after evaporation. Samples of the deluge water would be collected and analyzed. If the water is clean enough to discharge to grade (currently 90-95% of launches), it would be discharged from the retention basin via the spray field as described in prior EAs and SEAs. It would then percolate into the groundwater system and flow down gradient into Spring Canyon. With adherence to federal, State, and local laws and regulations, impacts on groundwater would be less than significant.

Water Supply

VSFB has two sources of drinking water; during normal operating conditions, the primary source comes from the State Water Project and the secondary source comes from four groundwater wells located on VSFB property. The VSFB wells are typically only used to augment State Water supplies and become the primary source during emergency repair or annual maintenance shutdowns on the State Water Project system. Over the past twenty years there have been several persistent drought periods affecting State Water Project supplies and VSFB has had to rely on its groundwater wells for extended periods to meet supply demands. As previously stated, the Proposed Action would use up to 19.5 acre-feet of water per year, which approximately 0.7 percent of the total annual water usage on VSFB. The Proposed Action is within the normal fluctuation and water demand of VSFB. The Proposed Action's water usage would result in no effect to sensitive coastal resources in San Antonio Creek.

Conclusion

The Proposed Action avoids substantially interfering with surface water flow and would not substantially alter the quality of coastal waters, streams, wetlands, or estuaries. Therefore, the Proposed Action is consistent to the maximum extent practicable with Sections 30231 and 30232 of the CCA.

3.2.6 ARTICLE 4: MARINE ENVIRONMENT (COMMERCIAL AND RECREATIONAL FISHING)

Policies

CCA Section 30234 – "Commercial fishing and recreational boating facilities" states:

> *Facilities serving the commercial fishing and recreational boating industries shall be protected and, where feasible, upgraded. Existing commercial fishing and recreational boating harbor space shall not be reduced unless the demand for those facilities no longer exists or adequate substitute space has been provided. Proposed recreational boating facilities shall, where feasible, be designed and located in such a fashion as not to interfere with the needs of the commercial fishing industry.*

CCA Section 30234.5 – "Economic, commercial and recreational importance of fishing" states:

> *The economic, commercial, and recreational importance of fishing activities shall be recognized and protected.*

Consistency Review

Southern California's west coast is a leading recreational and commercial fishing area. SpaceX launches missions from VSFB with a launch azimuth between 140 and 325 degrees, supporting a wide range of U.S. Government missions. The maritime hazard area for any given mission would include up to approximately 54 California Commercial Fisheries Blocks as defined by the California Department of Fish and Wildlife. Southerly trajectories would cover more blocks than westerly trajectories, as the vehicle's trajectory is over state waters for longer. The maritime hazard area follows the path of the trajectory and is approximately 21 miles wide at its widest. These launch azimuths also include multiple State Marine Reserves, which prohibit or significantly limit fishing. These are generally clustered around VSFB and the Northern Channel Islands.

The public's safety during launch operations is of upmost importance to SLD 30, FAA, USCG, and SpaceX, which includes the protection of maritime users near the launch vehicle's flight trajectory. Comprehensive safety measures, governed by federal regulations, are put into place for every launch to identify, communicate, and monitor areas that are at risk. Launch operations are conducted in a manner that is biased towards public safety and vessels that ignore hazard warnings near the launch trajectory may delay or cancel a launch if they present unacceptable public risk. While considerable formal planning and regulatory communications are accomplished during this process, successful implementation is dependent upon the good faith and collaboration of all maritime users.

The USCG supports launches from federal ranges by notifying the public of the maritime hazard upon request by the range authority or by the launch operator if a Letter of Intent has been signed by both parties. The USCG is not obligated to provide assets during commercial launch activities and maintains the discretion to determine how to employ its resources and manage maritime risks within their jurisdiction. The USCG issues various types of Notices to Mariners (NOTMARs); including Local Notice to Mariners (LNM), Broadcast Notice to Mariners (BNM), and Marine Safety Informational Bulletin (MSIB), all of which

include the predicted time and location of the hazard. These are notifications of potential hazardous operations and do not explicitly prohibit vessels from entering the identified areas. In determining the appropriate NOTMAR for the planned hazard areas, USCG District 11 reviews the risk assessments performed by SLD 30 for the launch or reentry activity and impacted commercial and recreational vessels on the high seas off the California Coast.

To ensure public safety, such warnings are issued for a window of time that includes the nominal launch duration plus the expected debris fall time in the event of a failure. The timing, duration, and direction of the launch is highly dependent upon the mission's requirements for accessing space. Akin to the ocean tides often dictating the best times for fishing, the earth's rotation and orbital mechanics dictate when and what direction to launch. For example, when needing to rendezvous with another spacecraft, the length of available times to launch can be as short as instantaneous and inflexible to move. Similarly, launch opportunities may only be available every few days or may only be available for a few weeks every so many years, which often is the case in launching to other planets or space objects. Alternatively, populating satellite constellations and launching prototype satellites are typically more flexible and may result in longer and adjustable times. Even with the most flexible orbital requirements, the length of the time window for launch, as well as the number of consecutive launch attempts, must be constrained to properly fit into other maritime operations as well as with the FAA-managed national airspace system and the efficient operations and movement across VSFB. In addition to mission requirements, launch days/times are adjusted to reduce range scheduling conflicts with SLD 30, national airspace impacts with FAA, radio frequency conflicts with U.S. Government users, and maritime impacts with USCG and U.S. Navy.

FAA regulations requires the public to be notified of all maritime hazard areas for each launch. If the risk, as calculated by SLD 30, within a portion of the maritime hazard area exceeds a threshold determined by the FAA, access to this smaller area, known as the "surveillance area" may be restricted for launch to be allowed to proceed. Due to Falcon's reliability, SpaceX's surveillance areas for launches from VSFB have minimal impacts to maritime activities. For many missions, this closure area does not even leave land. Accordingly, only a small subset of fishing blocks within the vicinity of VSFB have the potential to be closed by each launch and for a relatively short period of time. The area within the hazard area, but not closed to vessel traffic, is approximately two blocks wide along each given trajectory. The size and shape of this area is described in the published NOTMAR and is specific to the mission and timing. As previously stated, this corridor is approximately 21 miles wide at its widest to a point where the risk is below safety thresholds. The size varies based on several factors including the launch flight trajectory and simulations of variations of the trajectory, expected seasonal winds, launch vehicle reliability, launch vehicle break-up modeling in case of an anomaly, anticipated vessel traffic, population data near the launch site, and other factors. Figure 3-1 and Figure 3-2 show example NOTMARs for different Falcon 9 launches. The area in red is the maritime surveillance area, which restricts access, while the area in blue is the maritime hazard area, which does not restrict access. As shown in Figure 3-1, there was no maritime surveillance area and therefore this mission did not require a closure or restriction of state waters.

Figure 3-1: Example vehicle hazard areas for VSFB launches

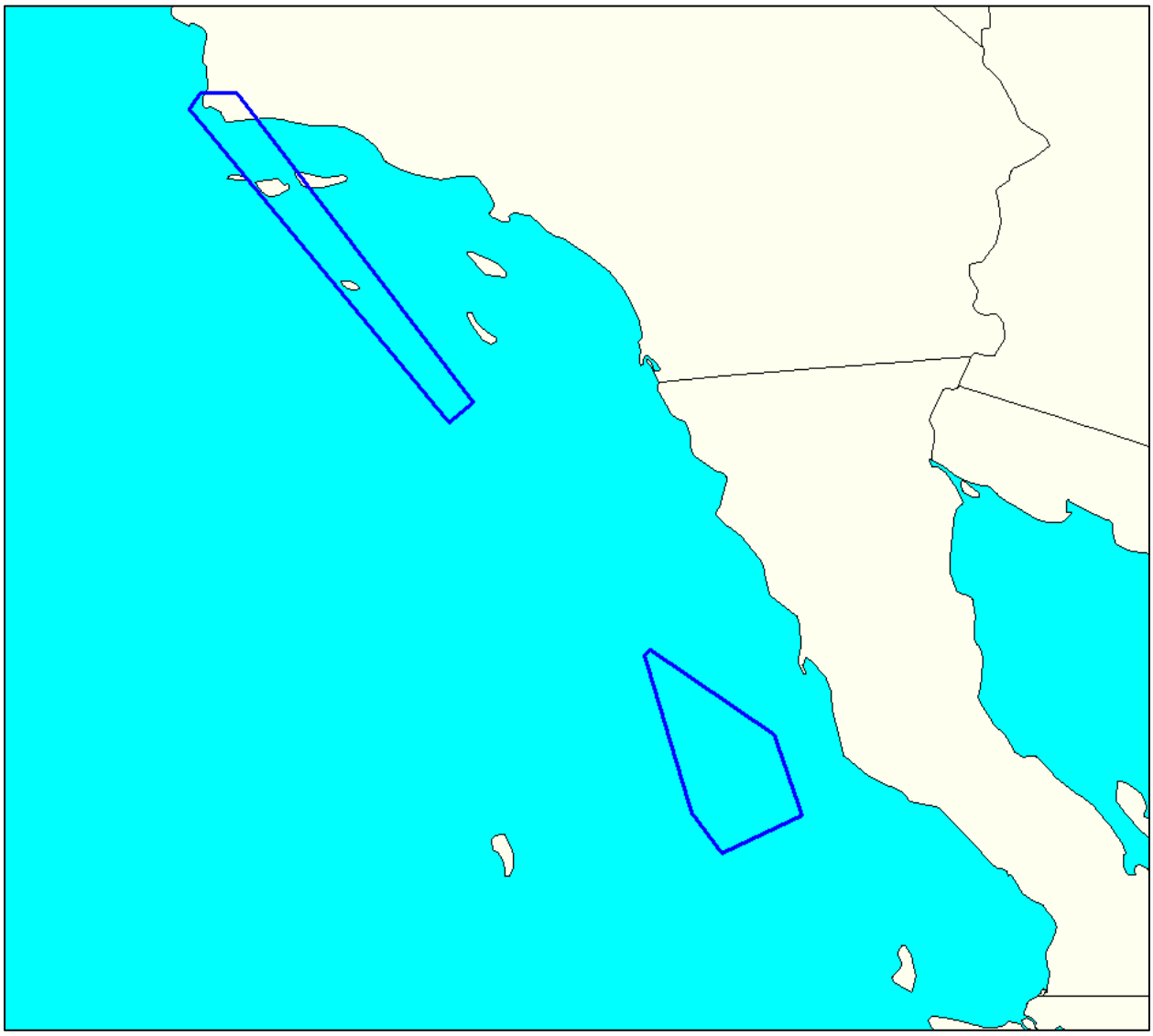
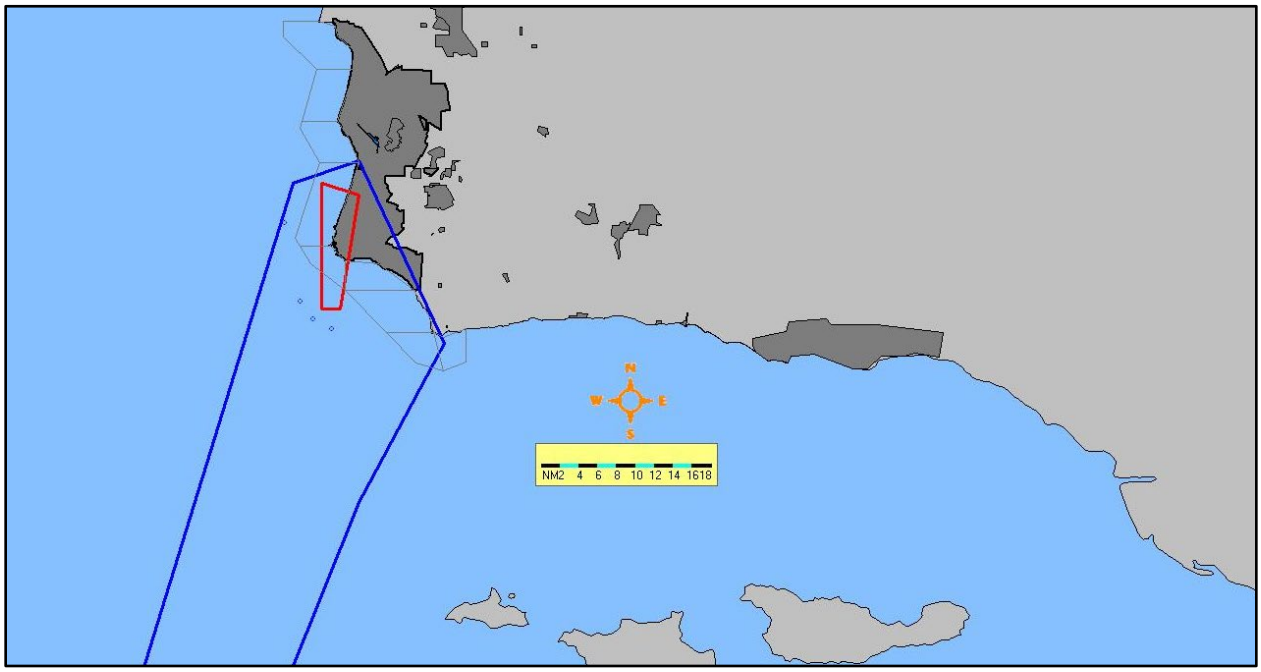


Figure 3-2: Example vehicle hazard areas for VSFB launches



As noted above, since the NOTMARs are notices for unpatrolled hazard areas and not hard closures, vessels that enter the hazard area pose a safety risk for the launch. When an incursion of the NOTMAR occurs, SLD 30 or USCG personnel may contact the vessel and request confirmation of the number of passengers on-board, if the vessel cannot be contacted, a conservative estimate is assumed. SLD 30 range safety personnel then use this value to update risk safety calculations in real-time verify the safety requirements are not exceeded. For small vessels with only a few people, such as most recreational and commercial fishing vessels, the risk calculations often are not violated, and the launch may proceed. However, an increase in vessel traffic in the vehicle hazard area and/or a vessel (even a small one) close to the trajectory may violate the safety criteria and cause the launch to be delayed or cancelled. SpaceX has both delayed and cancelled launch attempts in order to protect the safety of vessels that did not heed the warning in the NOTMAR and proceeded to enter the hazard area. A launch delay or cancellation adds significant operations costs to a launch, including rescheduling of range assets and staffing, perishable launch commodities (e.g., liquid oxygen, nitrogen gas, helium gas), mission delay costs, and potential customer penalties. DAF and SpaceX are, therefore, highly motivated to work with other maritime users to avoid conflicts that could cause inadvertent delays.

Communication beyond the NOTMAR is key to successfully minimize and avoid impacts to recreational and commercial fishing stakeholders. DAF, in coordination with SpaceX, will establish a communication protocol with maritime stakeholders in the region. This will establish regular dialogue with a variety of commercial and recreational fishing stakeholders, including the Port San Luis Commercial Fishermen's Association and similar fisherman associations, fish buyers and processors, harbor masters, and sport fishing companies. The chairmen of local fisherman's associations will be provided an email that includes the date and time of the surveillance area, and the vessel hazard area that is also available in the NOTMAR, and for how long these will be in effect. Collaborative pre-planning and deeper understanding of the NOTMAR warning areas allows mariners to understand how small adjustments in their plans, such as adjusting port departure times or fishing areas, will meet their landing goals while also respecting DAF's requirements for maritime environment safety. Orbital mechanics and other competing demands, such

as FAA commercial air traffic adjustments, may not fully satisfy fishermen requests. In these cases, additional coordination prior to and on launch day will help balance needs, including updated launch safety calculations and real-time radio communications. Therefore, impacts on recreational and commercial fishing would be less than significant. The Proposed Action is consistent to the maximum extent practicable with Sections 30234 and 30234.5 of the CCA.

3.2.7 ARTICLE 5: LAND RESOURCES

Policies

CCA Section 30240 (b) – "Environmentally sensitive habitat areas, adjacent developments" states:

> *Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.*

Consistency Review

The Proposed Action does not involve any construction or ground disturbing activities. However, multiple federally listed species protected under the Endangered Species Act (ESA), potential habitat that supports these listed species, and several state special status species occur within the vicinity of SLC-4 and at VSFB that could experience impacts due to launch and landing. Pursuant to Section 7 of the ES A, DAF prepared a Biological Assessment for the USFWS, who subsequently issued a Biological Opinion.

Appendix B includes a list of special status species assumed to occur in the noise footprint (Table B-1). All species that were reasonably likely to occur were assumed potentially present; therefore, the DAF believes there is no requirement to conduct protocol surveys. These species likelihood of occurrence and where they may be found within the Action Area are discussed below.

The California least tern nests at Purisima Point and adults and fledglings roost and forage at Santa Ynez River lagoon. The nesting colony is approximately 8 mi north of SLC-4. The lagoon is approximately 3.7 miles north of SLC-4. At these distances, terns would be outside areas where loud noises would occur and be far enough from the launch and static fire activities that no effect on nesting, foraging, or roosting terns is expected. Potential habitat for least Bell's vireo (federally listed endangered species/state listed endangered species) and southwestern willow flycatcher (federally listed endangered species/state listed endangered species) exists on VSFB. However, these species have not been documented within the area potentially impacted by a significant launch or static fire related noise. Historically occupied breeding habitat for the southwestern willow flycatcher along the Santa Ynez River on VSFB has been degraded and is unlikely to support breeding in the future (Seavy et al. 2012). As a result, these species were not carried forward for analysis of impacts.

Table 3-7 contains the species that occur within the noise footprint that are federally listed as threatened or endangered under the Endangered Species Act (ESA). The DAF determined these species may be potentially affected by the Proposed Action from noise impacts during operations. The DAF completed formal consultation with the USFWS for these species and the Biological Opinion has been shared with the CCC staffers.

Table 3-4: Determination of Potential Impacts to Federally Listed Threatened & Endangered Species

Species	Status	ESA Effects Determination
FISHES		
Tidewater goby (*Eucyclogobius newberryi*)	FE	NLAA
Unarmored Threespine Stickleback (*Gasterosteus aculeatus williamsoni*)	FE	NLAA
AMPHIBIANS		
California red-legged frog (*Rana draytonii*)	FT	LAA
BIRDS		
California condor (*Gymnogyps californianus*)	FE	NLAA
Marbled murrelet (*Brachyramphus marmoratus*)	FT	NLAA
Western snowy plover (*Charadrius nivosus nivosus*)	FT	LAA
California Least Tern (*Sternula antillarum browni*)	FE	LAA
Mammals		
Southern sea otter (*Enhydra lutris nereis*)	FT	NLAA

Notes: FE = Federally Endangered Species; FT = Federally Threatened Species; NLAA = May affect, not likely to adversely affect; ESA = Endangered Species Act

Launch monitoring conducted between 2017 and 2023 has not found significant impacts to California red-legged frog (CRLF), California least tern, or western snowy plover. Monitoring has not found launch noise to have an adverse effect on CRLF, including call frequency. Nesting terns and plovers have been found to hunker down or briefly flee during noise events, but no damage to eggs has been found that can be directly attributed to the noise event. A detailed discussion of potential effects to each species is below.

Tidewater goby (TWG)

Direct Impacts. No aspects of the Proposed Action would have potential physical impacts on TWG.

Noise Impacts. During up to 36 launch events per year, engine noise produced during Falcon 9 launches would reach approximately 123 dB maximum sound level (Lmax) at potential TWG habitat in Honda Creek. During up to 12 SLC-4W landing events per year, noise would be less than 100 dB Lmax at Honda Creek. Static fire events produce approximately 115 dB Lmax at Honda Creek.

Exceptionally little sound is transmitted between the air-water interface (Godin 2008). Therefore, in-air sound during launches and static fire events is not expected to cause more than a temporary behavioral disruption to fish, if present, in Honda Creek. Since TWG have not been detected during regular survey efforts dating back to 2008 (MSRS 2009, 2016, 2018a), they are unlikely to be present during the proposed launch and static fire activities; however, TWG could potentially recolonize Honda Creek in the future.

Conclusion. Because of the low likelihood of TWG presence in Honda Creek and the minimal transfer of in-air noise into underwater noise, the anticipated level of disturbance from the Proposed Action would

be discountable. Therefore, VSFB has determined that the Proposed Action may affect but is not likely to adversely affect the TWG and, therefore, would not be significant.

Unarmored Threespine Stickleback (UTS)

Direct Impacts. No aspects of the Proposed Action would have potential physical impacts on UTS.

Noise Impacts. The UTS was introduced into Honda Creek, south of SLC-5, in 1984 (MSRS 2009a). Extensive surveys conducted in 2008, 2016, and 2017 did not detect any fish in the creek (MSRS 2009a, 2016, 2018a). Between 2008 and 2022, Honda Creek has gone through multiple cycles of drying and rehydration, which would preclude occupancy by and persistence of fish. UTS in San Antonio Creek would be outside areas where launch noise would occur.

Conclusion. The increase in water extraction from the San Antonio Creek Basin under the Proposed Action would be discountable. Therefore, VSFB has determined that the Proposed Action may affect but is not likely to adversely affect the UTS.

California red-legged frog (CRLF)

Direct Impacts. Direct impacts on post-metamorphic CRLF within the 3.3-ac (1.3-ha) vegetation management area may include injury or mortality from inadvertent crushing by workers as they walk and operate mechanical equipment while mowing vegetation. During launch, CRLF may be injured or killed as a result of the release of hot water and vapor into Spring Canyon from the flame bucket. An assessment of Spring Canyon in 2013 (MSRS 2014) and in July 2017 (MSRS 2017) found no suitable aquatic habitat within Spring Canyon within or ``downstream of the vegetation management area. In addition, since 2017, across 11 survey efforts to perform minimization measures associated with the 2017 BO, no suitable habitat has been found in this area, likely because of the protracted drought conditions in the region. Routinely mowing the vegetation in the area impacted by water and vapor also reduces the suitability and attractiveness of the site for CLRF occupancy. It is therefore unlikely that CRLF occupy this area on a regular basis and no direct impacts during vegetation management activities or water release are anticipated.

The risk of impacts on CRLF during vegetation management would be reduced because USFWS approved or permitted biologists would capture and relocate all individuals detected within the vegetation management area to nearby suitable habitat prior to the onset of vegetation clearing activities. A qualified biologist would be present to monitor vegetation-clearing activities and a USFWS approved or permitted biologist would move any CRLF encountered out of harm's way.

Noise Impacts. During up to 36 launch events of the Falcon 9 per year, engine noise would reach approximately 128 dB Lmax at Bear Creek, 123 dB Lmax at Honda Creek, and 118 dB Lmax at the Santa Ynez River. Up to 36 static fire tests per year would produce noise of approximately 125 dB Lmax at Bear Creek, approximately 118 dB Lmax at Honda Creek, and 110 dB Lmax at the Santa Ynez River. During up to 12 SLC-4W first stage landing events per year, landing engine noise in these locations would be approximately 100 dB Lmax at Bear Creek, less than 100 dB Lmax at Honda Creek, and less than 85 dB Lmax at the Santa Ynez River. Up to 12 SLC-4 landing events per year would also produce sonic booms that would impact the Santa Ynez River (estimated between 1.5 and 2.0 psf), Honda Creek (estimated between 2.0 and 3.0 psf), and Bear Creek (estimated between 4.0 and 5.0 psf). Landing noise follows launch by approximately 5 to 7 minutes and typically occurs slightly before (seconds) the sonic boom impacts land.

The received maximum noise levels estimates are conservative since the modeling assumes a flat landscape and does not account for features like hills, bluffs, or dense vegetation that would attenuate sound during noise events. Engine noise would reach as high as 150 dB Lmax with sonic booms up to 8.5 psf in upland CRLF dispersal habitat on SLC-4. However, vegetation management within and around SLC-4 would make CRLF presence above ground in these areas unlikely during typical dry conditions.

All life stages of CRLF can detect noise and vibrations (Lewis & Narins 1985) and are assumed to be able to perceive the engine noise produced by launch vehicles. There are no studies on the effects of noise on CRLF, and few studies on the effects of noise disturbance on anurans in general. Those studies that have been conducted have often focused on the effects of sustained vehicle noise associated with roads near breeding ponds, which have been shown to have negative effects on individual frog's behavior and physiology and may have consequences for populations (see Parris et al. 2009 and Tennessen et al. 2014). However, impacts from engine noise would be of short duration and, therefore expected to have different effects on frogs than sustained noise.

Engine noise would likely trigger a startle response in CRLF, causing them to flee to water or attempt to hide in place. It is likely that any reaction would be dependent on the sensitivity of the individual, the behavior in which it is engaged when it experiences the noise, and the sound level (e.g., higher stimuli would be more likely to trigger a response). Regardless, the reaction is expected to be the same – the frog's behavior would be disrupted, and it may flee to cover in a similar reaction to that of a frog reacting to a predator. As a result, there could be a temporary disruption of CRLF behaviors including foraging, calling, and mating (during the breeding season). However, frogs tend to return to normal behavior quickly after being disturbed. Rodrıguez-Prieto and Fernandez-Juricic (2005) examined the responses in the Iberian frog (*Rana iberica*) to repeated human disturbance and found that the resumption of normal behavior after three repeated human approaches occurred after less than four minutes. Sun and Narins (2005) examined the effects of airplane and motorcycle noise on anuran calling in a mixed-species assemblage, including the sapgreen stream frog (*Rana nigrovittata*). Sun and Narins found that frogs reduced calling rate during the stimulus but the sapgreen stream frog increased calling rate immediately after cessation of the stimuli, likely in response to the subsequent lull in ambient sound levels. Similarly, qualified biologists working on VSFB and elsewhere in CRLF occupied habitat have routinely observed a similar response in this species after disrupting individuals while conducting frog surveys (A. Abela, M. Ball, and J. LaBonte, pers. obs.). CRLF would, therefore, be expected to resume normal activities quickly once the disturbance has ended and any behavioral response would be short term.

Although no studies have been conducted on hearing damage in CRLF, Simmons et al. (2014) found that consistent morphological damage of hair cells in the hearing structures of American bullfrogs (Lithobates catesbeianus), which are within the same Family as the CRLF (Ranidae), were observed with sound exposure levels (SEL) greater than 150 dB Lmax SEL. Even after such hearing damage, bullfrogs showed full functional recovery within 3 to 4 days, thus the hearing damage was temporary (Simmons et al. 2014). CRLF in terrestrial environments may be exposed to engine noise levels of 128 dB Lmax and, therefore, even temporary hearing damage would be unlikely for CRLF that may be present. Additionally, due to vegetation management around the proposed launch vehicle sites, the likelihood of CRLF being present in terrestrial environments exposed to these noise levels would be very low and few individuals would be impacted.

It is assumed that the sonic boom would likely trigger a startle response in CRLF, causing them to flee to water or attempt to hide in place. This would result in a temporary disruption of behaviors including foraging, calling, and mating. However, there are no data on what level of sonic boom would cause this

reaction. During a landing event during CRLF breeding season, MSRS performed bioacoustic monitoring (MSRS 2022) at two locations within the predicted boom impact area, following the monitoring requirements of the 2017 BO (USFWS 2017a). Though the landing occurred during daylight hours, CRLF were detected calling at both monitoring locations, a drainage near the VSFB Recreation Center and lower Honda Creek. The sonic boom did not cause a measurable reduction in CRLF calling frequency at either of the two locations where the received overpressures were between 1 (VSFB Recreation Center) and 2.4 psf (lower Honda Creek). At both sites, CRLF calls were detected within 20 to 30 minutes after the sonic boom was received and the average number of calls per hour during the two nights following the sonic boom were greater than the night prior to the boom, suggesting that the noise disturbance did not prompt reduced calling behavior (MSRS 2022). At the Fitness Center Drainage, three CRLF calls were detected during the hour prior to the sonic boom (1100–1200), and three were detected the hour period when the sonic boom occurred (1200–1300). One of the three calls detected during the period when the boom was received was 30 minutes prior to the boom and again 23 and 24 minutes after the boom. At lower Honda Creek, no CRLF calls were detected during the hour period prior to the sonic boom (1100–1200), and four calls were detected during the hour when the boom occurred (1200–1300). Of the four calls that occurred during the hour period when the boom was received, all four were detected after the boom, at 32, 37, 47, and 48 minutes following the sonic boom (MSRS 2022).

In alignment with the BO, the DAF will continue to implement a monitoring program to track CRLF habitat occupancy, breeding behaviors (calling), and breeding success (egg mass and tadpole densities) in lower Honda Creek as the frequency of launch and static fire tests under the proposed project. DAF will be able to assess incremental changes in the acoustic environment at Lower Honda Creek using passive bioacoustic recorders and analyze these data to assess any associated impacts on the CRLF population. If CRLF occupancy, calling frequency, or tadpole densities decline from baseline by 15 percent or more, the 15 percent decline from baseline is maintained for two consecutive years, and the decline is not attributable to other non-launch-related factors, VSFB would mitigate for these impacts by creating new CRLF breeding habitat at the San Antonio Creek Oxbow Restoration Area, an established wetland mitigation site that is located outside of areas currently impacted by launch noise on VSFB. Historically occupied by riparian vegetation, restoration efforts would focus on enhancing this abandoned tract of agricultural land to improve San Antonio Creek and provide breeding habitat for CRLF, thus offsetting population level impacts at Honda Creek within an area that is not impacted by launch noise.

Conclusion. VSFB has determined that potential physical impacts because of water release and vegetation clearing in Spring Canyon, rocket engine noise, and sonic booms resulting from the Proposed Action may affect, and is likely to adversely affect, the CRLF. Launch noise and sonic booms may induce behavioral responses in CRLF ranging from momentary startling or freezing by individual frogs to population-level emigration away from impacted areas. To comply with the DAF's sections 7(a)(1) and 7(a)(2) obligations under the ESA, as well as the prospective USFWS Mitigation Policy, post-project restoration activities will be implemented. Restoration activities will align with the objectives of the CRLF Conservation Strategy (USFWS, in prep.) with the goal of achieving no net loss to the species.

Marbled Murrelet (MAMU)

Direct Impacts. No ground disturbing activities would occur within or near MAMU habitat; therefore, the Proposed Action would have no direct physical impacts on MAMU or MAMU habitat.

Noise and Visual Impacts. This species has occasionally been observed between the late summer through winter foraging off the coast of south VSFB (eBird 2022). Although unlikely, if MAMU were present

immediately off the coast they would experience engine noise of less than 130 dB Lmax during launch, less than 115 dB Lmax during SLC-4 landing, approximately 125 dB Lmax during static fire events, and sonic booms up to 4 psf during SLC-4 landings. Additionally, the majority of MAMU are found in a band about 984 to 6,561 ft (300 to 2,000 m) from shore (Strachan et al. 1995) where noise levels would be much lower.

Very little data are available regarding MAMU's response to noise and visual disturbances; however, Bellefleur et al. (2009) examined the response of MAMU to boat traffic. MAMU response was found to depend on the age of the birds, the distance and speed of the boats encountered, and the season. MAMU either showed no reaction, flew, or dove in response. Late in the season (July through August), some MAMU were found to fly completely out of feeding areas when approached by boats traveling more than 17.9 mi per hour (28.8 km per hour). The dominant response of MAMU to approach by boats was, however, for birds to dive and resurface a short distance away. MAMU are, therefore, expected to exhibit a startle response that would cause birds to dive and resurface, but they are expected to return to normal behavior soon after each launch or static fire event has been completed.

Conclusion. Based on our analysis, MAMU are unlikely to be present during a launch or static fire event and if present may have a temporary behavioral reaction in response to noise. Thus, the Proposed Action would have a discountable effect on MAMU. Therefore, VSFB has determined that the Proposed Action may affect, but is not likely to adversely affect MAMU and, therefore, would not be significant.

Western Snowy Plover (SNPL)

Direct Impacts. No ground disturbing activities would occur within or near SNPL habitat; therefore, the Proposed Action would have no direct physical impacts on SNPL or SNPL habitat.

Noise and Visual Disturbance. SNPL on VSFB beaches would be exposed to levels between 100 and 130 dB Lmax during launches, between approximately 100 and 110 dB Lmax during SLC-4 landing, and between 100 and 125 dB Lmax during static fire events (Figure 4.5-2), and sonic booms between 1.5 and 5.0 psf during SLC-4 landing. Launch noise events would last less than one minute and static fire noise would last less than 7 seconds.

SNPL monitoring for impacts from launch-related engine noise and visual disturbance has been conducted during numerous launches on VSFB. Direct observations of wintering birds were made during a Titan IV and Falcon 9 launch from SLC-4E (SRS Technologies, Inc. 2006b; Robinette and Ball 2013). The Titan IV launches resulted in sound levels of 130 dBA Lmax. SNPL did not exhibit any adverse reactions to these launches (SRS Technologies, Inc. 2006b; Robinette and Ball 2013) except for one observation. During the launch of a Titan II from SLC-4W in 1998, monitoring of SNPL found the nest located closest to the launch facility had one of three eggs broken after the launch (Applegate and Schultz 1998). The cause of the damaged egg was not determined.

More recently on 12 June 2019, SNPL response was documented during a SpaceX Falcon 9 launch and first stage recovery at SLC-4. The return flight of the first stage to VSFB produced a 3.36 psf sonic boom and landing engine noise of 138 dB Lmax and 130 dB SEL, as measured on South Surf Beach. SNPL response to the noise impacts was documented via pre- and post-launch monitoring and video recording during the launch event. Incubating SNPL captured on video were observed to startle and either jump or hunker down in response to the sonic boom. One SNPL egg showed signs of potential damage. This egg was part of a three-egg clutch in which the other two eggs successfully hatched. It is not uncommon for one or more eggs from a successful nest to not hatch. Failure of the egg to hatch could not be conclusively tied to the launch event (Robinette and Rice 2019).

In alignment with the BO, the DAF commits to augmenting the existing SNPL monitoring program on VSFB, which records habitat use, nesting efforts, nest fates, fledgling survival, and population size through each breeding season, with geospatial analysis of SNPL nesting and the noise environment. Sound meters will be deployed immediately inland of South Surf Beach and a control site to characterize the noise environment during the breeding season within the noise footprint of SpaceX launches. Geospatial analysis will be performed annually to assess whether patterns of nesting activity, nest fates, or fledgling success are negatively impacted by noise from SpaceX operations. If the geospatial analysis shows that a statistically significant decline in breeding effort or nest success over two consecutive years, and that this decline cannot confidently be attributed to other natural or human caused catastrophic factors, the DAF will offset this impact by increasing predator removal efforts on VSFB to include the non-breeding season, particularly focusing on raven removal adjacent to VSFB beaches, with a goal of achieving no net loss of the species.

Conclusion. VSFB has determined that the Proposed Action may affect, and is likely to adversely affect, the SNPL on VSFB. VSFB would perform geospatial analysis to monitor the impacts of noise from the Proposed Action and other launch programs on Base to assess any potential adverse impacts on the species at VSFB as the launch frequency under the Proposed Action gradually increases and reaches full tempo. If adverse effects are found, VSFB would mitigate those effects by increasing predator management efforts on VSFB to comply with the DAF's sections 7(a)(1) and 7(a)(2) obligations under the ESA. Mitigation activities would align with the SNPL Recovery Plan (USFWS 2007), and 5-year review (USFWS 2019) with the goal of achieving no net loss to the species.

California Least Tern (LETE)

Direct Impacts. No ground disturbing activities would occur within or near LETE habitat; therefore, the Proposed Action would have no direct physical impacts on LETE or LETE habitat.

Noise and Visual Disturbance. If missions are performed when LETE are present (approximately 15 April through 15 August), LETE at the Purisima colony would receive launch engine noise of approximately 108 dB Lmax. The Purisima colony and Santa Ynez River mouth would receive landing engine noise less than 80 dB Lmax. During static fire, which typically occur 1 to 3 days prior to launch, noise levels at the Purisima colony would be approximately 102 dB Lmax. During landing events, overpressures would be between 1 and 3 psf from a sonic boom. If LETE are present at the Santa Ynez River mouth, they may experience 115 dB Lmax during launches and less than 80 dB Lmax engine noise and a 1.5 to 4.0 psf sonic boom during SLC-4 landing events. Static fire tests would produce approximately 110 dB Lmax at the Santa Ynez River mouth. Due to time requirements for refurbishing vehicle components, payload preparation, and site preparation, only approximately one third of the proposed 36 annual launches would overlap the time period when LETE are typically present at VSFB.

At VSFB, LETE monitoring has been conducted for five Delta II launches from SLC-2 on north VSFB. SLC-2 is 0.4 mi. (0.6 km) from the Purisima Point nesting colony. LETE responses to launch noise have varied. Pre- and post-launch monitoring of non-breeding LETE for the 7 June 2007 Delta II COSMO-1 launch and monitoring of nesting LETE during the 20 June 2008 Delta II OSTM and 10 June 2011 Delta II AQUARIUS launches did not document any mortality of adults, young, or eggs, or any abnormal behavior resulting from launches (MSRS 2007a, 2008b, 2011). In addition, Delta II launches from SLC-2 in 2002 and 2005, when terns were arriving at the colony, may have caused temporary or permanent emigration from the colony because there was decreased attendance following the launches (Robinette et al. 2003; Robinette & Rogan 2005). These data imply that LETE response to noise relates to timing with the nesting cycle. For

instance, at the beginning of the nesting season when LETE are arriving at the breeding colony, the adults seem to be more disturbed, but once courtship and nest-tending begins, the adults are more tenacious.

On 12 June 2019, LETE response was documented during a SpaceX Falcon 9 launch with first stage landing at SLC-4 on VSFB. The landing produced a 2.7 psf sonic boom, as measured at the Purisima LETE colony. LETE response to the launch and boost-back landing was documented via pre- and post-launch monitoring and video recording during the launch event. LETE response during the launch was difficult to determine since birds flushed before sonic boom impact. All LETE returned to their nests minutes after the launch event. One LETE egg was found to be damaged. The damaged LETE egg was from a one egg clutch and was inspected when it was a week past hatch date. The cause of the damage to the egg was inconclusive (Robinette & Rice 2019).

The effect of increasing noise disturbances on LETE will be uncertain based on the scientific literature. However, none of these studies in the scientific literature are directly comparable to the noise impacts of the Proposed Action. Launch engine noise and sonic booms are acute, non-sustained, and unpredictable. It is more similar to aircraft noise disturbances studied in the literature yet would be relatively much less frequent. Beyond the launch monitoring efforts discussed above, there are almost no studies on the effects of rocket launch on birds.

Conclusion. VSFB has determined that the Proposed Action may affect, and is likely to adversely affect, the LETE on VSFB. Individuals nesting, roosting, and foraging in the action area are likely to be distressed by visual disturbance, noise, and overpressures from launch and landing activities. These disturbances may startle LETE or disrupt foraging or breeding activities. If launch and landing occur during the breeding season (approximately April through August), brooding birds may startle and flush which could potentially damage eggs and leave eggs or chicks unattended. Unattended eggs and chicks may become vulnerable to exposure or predation.

Frequent exposure to sound and overpressure may cause effects that are not immediately evident and may cause reduced numbers of nesting adults or reduced productivity in the action area over time.

VSFB would monitor the impacts of noise from the Proposed Action to assess any potential adverse impacts on the species at VSFB as the launch frequency increases and reaches full tempo (Section 2.3.4). If adverse effects are found, VSFB would mitigate those effects by increasing predator management efforts on VSFB (Section 2.3.4) to comply with the DAF's sections 7(a)(1) and 7(a)(2) obligations under the ESA. Mitigation activities would align with the LETE Recovery Plan (USFWS 1985b) and 5-year review (USFWS 2020) with the goal of achieving no net loss to the species.

California Condor

Direct Impacts. No ground disturbing activities would occur within or near California condor habitat and the Action Area is outside the normal range of the species and the species. California condor is not known to breed within the Action Area; therefore, the Proposed Action would have no direct physical impacts on California condor or condor habitat.

Noise and Visual Disturbance. It has been difficult to analyze the effect human disturbance could have on California condors. Generally, California condors are less tolerant of human disturbances near nesting sites than at roosting sites. The species is described as being "keenly aware of intruders" and may be alarmed by loud noises from distances greater than 1.6 mi. (2.6 km). In addition, the greater the disturbance in either noise level or frequency, the less likely the condor would be to nest nearby. As such, USFWS typically requires isolating roosting and nesting sites from human intrusion (USFWS 1996). Noise

from a launch coupled with visual disturbance could cause a startle response and disrupt behavior if a condor is within the Action Area.

Although launch noise, sonic booms, and visual disturbance may cause a startle response and disrupt behavior, the likelihood of a condor being present during these activities is extremely low and, therefore, the effect of the Proposed Action would be discountable.

Conclusion. The overall likelihood of a California condor occurring within the Action Area during a launch, landing, or static fire event is extremely unlikely, hence, discountable. Therefore, VSFB has determined that Proposed Action may affect, but is not likely to adversely affect, the California condor. The DAF will coordinate with the USFWS and Ventana Wildlife Society to monitor for condor presence prior to launches.

Southern Sea Otter

A detailed discussion of Southern Sea Otter is included in Section 3.2.4. Because there is very little overlap in the hearing sensitivity of otters and noise produced during rocket launches and landings, otters would perceive very little noise during launch activities and VSFB has determined that impacts on southern sea otter would be insignificant as a result of the Proposed Action, including the collective effects of increased launch activities at VSFB. Therefore, the Proposed Action may affect, but is not likely to adversely affect, the southern sea otter off the coast of VSFB.

Potential Impacts to Special Status Species

Temporary disturbances to terrestrial wildlife species within the Action Area would also occur during the launch and static fire events from noise caused by the firing and flight of the vehicles. Wildlife responses to noise can be behavioral or physiological – ranging from mild, such as an increase in heart rate, to more damaging effects on metabolism and hormone balance. Because responses to noise are species specific, exact predictions of the effects on each species are unreliable without data pertaining to those species or similar species.

During launches, landing, and static firings, noise levels up to 150 dB Lmax with sonic booms up to 5.0 psf would be produced at SLC-4. Although we cannot make exact predictions, we expect these noises to elicit a startle response in terrestrial wildlife species with developed hearing abilities. Potentially, wildlife hearing thresholds could shift either permanently or temporarily in wildlife if they are active on the surface close to SLC-4 during launch, landing, or static fire events. Exceptionally little sound is transmitted between the air-water interface; thus, in-air sound would not have a significant effect on submerged animals (Godin 2008). Because the affected area is relatively small and the noise events are temporary, we expect behavioral disruptions and potential hearing threshold shifts would not have population-level impacts and, therefore, would not have a significant effect on wildlife resources.

Management actions focused on bats are incorporated in VSFB's Integrated Natural Resources Management Plan. The DAF has been actively monitoring bats on VSFB. In the late 2000's, the DAF worked with regional bat experts Patricia Brown, Dixie Pearson, Drew Stokes and others to assess bat diversity and distribution on VSFB. In 2011, the Central Coast Bat Research Group established acoustic monitoring protocols for studies on VSFB and initial acoustic surveys were completed across VSFB in a variety of habitats. In 2013, in cooperation with Bat Conservation International (BCI) and University of California, Santa Cruz, the DAF designed and installed an artificial habitat for Townsend's big eared bat (*Corynorhinus townsendii*), combining suitable roost for a maternity colony as well as overwintering. Recently, the Department of Defense has partnered with BCI to fully cooperate in the North American Bat Monitoring

Program at VSFB. This includes deploying many acoustic recording devices each summer, starting in 2023. A pilot program was completed in 2022. In 2022 and 2023, VSFB hosted researchers from Humboldt Polytechnic in 2022 and BCI and the University of California, Los Angeles in 2023 investigating bats and communicable diseases, including COVID 19. The DAF will augment the current bat monitoring program at VSFB by conducting additional acoustic monitoring within the noise footprint to determine which bat species are present and to record and assess their call rates before and after rocket launches. The DAF will discontinue monitoring after concurrence from the Commission if adverse effects attributable to the launch operations at VSFB are not detected once launch programs reach full or near full tempo.

Vegetation Communities

The Proposed Action does not involve construction or ground disturbance, thus would not result in new impacts to vegetative communities. Vegetation management would continue to occur at Spring Canyon as it currently does.

Reporting

The DAF would send an annual report to the Commission on all monitoring work conducted for biological resources and outline the data and results collected to date, and any initial conclusions regarding potential effects to the species resulting from the Proposed Action. The report will include the annual reports prepared for the USFWS for SNPL, LETE, CRLF, and bat monitoring. In addition, the DAF would provide a report to the Commission 5 years from project implementation on how the Proposed Action is, or is not, impacting the surrounding special-status species and their habitats.

Consistency Review Conclusion

The DAF and USFWS completed formal consultation for impacts resulting from the Proposed Action that may affect, but are not likely to adversely affect the TWG, California condor, MAMU, and SNPL, and that may affect and are likely to adversely affect the CRLF, SNPL, and LETE.

The DAF has determined that the Proposed Action would not result in population-level impacts on any biological resource. Further, restoration of temporarily disturbed sites would occur and all environmental protection measures (EPM's) would be followed (Appendix A). Therefore, the Proposed Action would be consistent to the maximum extent practicable with Section 30240 (b) of the CCA.

4 STATEMENT OF CONSISTENCY

The DAF has reviewed the CCMP and has determined that the policies identified in Section 3.1 of this CD do not apply to the Proposed Action. In addition, the DAF has determined that all or parts of the policies reviewed in Section 3.2 of this CD are relevant for purposes of assessing whether the project would be consistent to the maximum extent practicable with the CCMP. These policies include Sections 30210, 30213, 30214, 30220, 30230, 30231, 30232, 30234, 30234.5, and 30240(b).

An effects test was conducted by the DAF to analyze how and to what degree the Proposed Action would affect California coastal zone uses and resources, as defined and/or described in the relevant policies. The results of the effects test demonstrate that some components of the Proposed Action could have short-term, temporary effects to California coastal zone uses and resources. While some biological species may be affected, the Proposed Action would not have population-level effects. The DAF would implement standard operating procedures and EPMs for the Proposed Action (Appendix A), which would reduce the potential impacts of its proposed activities on coastal zone uses and resources. The DAF completed formal consultation with the USFWS and has completed informal consultation with NMFS for potential impacts on species listed under the ESA. NMFS has issued a LOA to the DAF for potential Level B Harassment of marine mammals due to rocket, missile, or aircraft activities from VSFB. USFWS has issued a BO to the DAF, which includes a robust biological monitoring program and authorizes incidental take of federally listed species due to the proposed action. In addition, the DAF completed consultation with the SHPO regarding effects of their actions on cultural properties listed in or eligible for inclusion in the NRHP. Therefore, the Proposed Action is consistent to the maximum extent practicable with the enforceable policies of the CCMP.

The DAF requests the CCC concur that launch operations at SLC-4 on VSFB would be consistent with CCA enforceable policies, to the maximum extent practicable.

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APPENDIX A – ENVIRONMENTAL PROTECTION MEASURES

Implementing the environmental protection measures (EPMs), outlined in Tables A.1-1 through A.5-1, would avoid or minimize potential adverse effects to various environmental resources during executing of the Preferred Alternative. Qualified SpaceX personnel or contractor staff would oversee fulfilling EPMs.

A.1 AIR QUALITY

The Santa Barbara County Air Pollution Control District (SBCAPCD) and California Air Resources Board (CARB) requires the dust control measures described in Table A.1-1 to decrease fugitive dust emissions from ground disturbing activities, as applicable to the Proposed Action.

Table A.1-1: Control Measures to Decrease Emissions

Environmental Protection Measures – Air Quality
✓ Any portable equipment powered by an internal combustion engine with a rated horsepower of 50 brake horsepower (bhp) or greater used for this project shall be registered in the California State-wide Portable Equipment Registration Program or have a valid SBCAPCD Permit to Operate.
✓ Ultra-low sulfur diesel fuel (15 parts per million by volume) will be used for all diesel equipment.
✓ CARB-developed idling regulations will be followed for trucks during loading and unloading.
✓ When feasible, equipment will be powered with Federally mandated “clean” diesel engines.
✓ The size of the engine in equipment and number of pieces of equipment operating simultaneously for the project should be minimized.
✓ Engines should be maintained in tune per manufacturer or operator’s specification.
✓ U.S. Environmental Protection Agency (USEPA) or CARB-certified diesel catalytic converters, diesel oxidation catalysts, and diesel particulate filters may be installed on all diesel equipment.
✓ When practicable, diesel equipment should be replaced with electrical equipment.
✓ CARB diesel will be the only fuel combusted in the engines while in California Coastal Waters

A.2 TERRESTRIAL BIOLOGICAL RESOURCES

The EPMs listed below would be implemented to avoid, minimize, or characterize the effects of the Proposed Action on terrestrial biological resources. These EPMs require various levels of biological competency from personnel completing specific tasks, as defined in Table A.2-1.

Table A.2-1: Biological monitoring qualifications

Biologist Level	Necessary Qualifications
Permitted Biologist	Biologist with a valid and current USFWS section 10(a)(1)(A) Recovery Permit or specifically named as an approved biologist in a project-specific BO. The DAF will coordinate with the USFWS prior to assigning permitted biologists to this project
USFWS Approved Biologist	Biologist with the expertise to identify species listed under the Endangered Species Act (ESA) and species with similar appearance. The DAF will review and approve the resumes from each individual, and then submit them to the USFWS for review and approval no less than 15 days prior to the start of the Proposed Action. Each resume will list their experience and qualifications to conduct specific actions that could potentially affect listed species and their habitats. A USFWS-approved biologist could train other biologists and personnel during surveys and project work; in some cases, a USFWS-approved biologist could also provide on-site supervision of other biologists.
Qualified Biologist	Biologist trained to accurately identify specific federally listed species and their habitats by either a Permitted or USFWS-approved biologist. This person could perform basic project monitoring but would need to have oversight from a permitted or USFWS-approved biologist. Oversight will require a permitted or USFWS-approved biologist to be available for phone/email consultation during the surveys and to have the ability to visit during monitoring/survey activities if needed.

A.2.1 GENERAL MEASURES

The measures described in Table A.2-2 would be implemented to minimize the potential impacts on terrestrial biological resources.

Table A.2-2: General Measures

✓ Disturbances shall be kept to the minimum extent necessary to accomplish project objectives.
✓ All erosion control materials used will be from weed-free sources and, if left in place following project completion, constructed from 100 percent biodegradable erosion control materials (e.g., erosion blankets, wattles).
✓ All human-generated trash at the project site shall be disposed of in proper containers and removed from the work site and disposed of properly at the end of each workday. Large dumpsters can be maintained at staging areas for this purpose.
✓ Equipment and vehicles (mowers, etc.) shall be cleaned of weed seeds prior to use in the project area to prevent the introduction of weeds and be inspected by a qualified biological monitor to

verify weed free status prior to use. Prior to site transport, any skid plates shall be removed and cleaned. Equipment should be cleaned of weed seeds daily especially wheels, undercarriages, and bumpers. Prior to leaving the project area, vehicles with caked-on soil or mud shall be cleaned with hand tools such as bristle brushes and brooms at a designated exit area; vehicles may subsequently be washed at an approved wash area. Vehicles with dry dusted soil (not caked-on soil or mud), prior to leaving a site at a designated exit area, shall be thoroughly brushed; alternatively, vehicles may be air blasted on site.

A.2.2 Threatened and Endangered Species

The DAF and qualified SpaceX personnel or contractor staff would ensure that all non-discretionary measures included in the USFWS BO issued for the Proposed Action, listed in Table A.2-3 would be implemented.

Table A.2-3: Species Measures

California Red-legged Frog Measures
General Measures
✓ The DAF will maintain exhaust ducts and associated v-ditch to be free of standing water to the maximum extent possible between launches to help minimize the potential to attract CRLF (*draytonii*) to SLC-4. ✓ The DAF will require that a biologist survey the SLC-4 v-ditch feature for CRLF prior to any maintenance activities and relocate any encountered individuals. ✓ The DAF will sample water quality in lower Spring Canyon once annually when ponded water is present to ensure no project related biproducts (i.e., launch combustion residue, operations-related run-off, etc.) have entered the waterway in a manner not previously considered in this analysis. The DAF will perform sampling a minimum of once a year for three years of project operations. The DAF will design water quality sampling to detect potential project related biproducts and any resulting associated changes in aquatic habitat (i.e., salinity, pH, etc.). Sampling will consider and utilize the most recent applicable advances in water quality sampling technology. The DAF will include maps depicting sampling locations during annual reporting. The DAF will collect and clearly present data including any associated chemical and nutrient presence, dissolved oxygen, water temperature, turbidity, and any other pertinent observations regarding ecosystem condition for purposes of annual comparison. If the DAF finds that project related water contamination occurs, the DAF will coordinate with the USFWS, address sources of input, and remediate. o The DAF will establish a pre-project baseline for hydrodynamic data within San Antonio Creek. During project operations the DAF will collect hydrodynamic data annually using consistent data collection methodologies for purposes of comparison against the established baseline. The DAF will use this data to ensure that the proposed project's water extraction, when viewed in addition to the unknown total water extraction amount of permitted launch projects, is not measurably affecting flow rate or water level within San Antonio Creek.
Vegetation Management Area
✓ One day prior to vegetation removal from Spring Canyon, a qualified biologist will conduct surveys for CRLF within the area to be mowed. Any CRLF present will be captured by the USFWS-approved or permitted biologist, if possible, and released at the nearest suitable habitat within Spring Canyon

outside of the vegetation management area, as determined by the biologist. All biologists will follow the Declining Amphibian Populations Task Force (DATF) fieldwork code of practice (DATF 2019) to avoid conveying diseases between work sites and will clean all equipment between use following protocols that are also suitable for aquatic reptiles. The USFWS-approved or permitted biologist will also be present during vegetation removal to capture and relocate CRLF to the extent that safety precautions allow. This biologist will also search for injured or dead CRLF after vegetation removal to document take.

- ✓ A qualified biologist will perform one CRLF survey annually during peak breeding season in Spring Canyon when individuals are most likely to be present and detectable. If CRLF are not encountered at the time of this survey, no subsequent pre/post launch surveys would occur. If CRLF is found to be present during the annual survey, pre- and post-launch surveys and relocation of any CRLF encountered would occur for each subsequent launch event.
    - The annual report will include methodology used (i.e., survey time, date, duration, weather conditions, and a depiction of the survey area).

CRLF Baseline and Launch Monitoring

- ✓ The DAF will implement long-term monitoring of annual population and distribution trends associated with CRLF populations within Honda Creek, Bear Creek, and Santa Ynez River. The DAF will develop a monitoring plan that adequately addresses potential short- and long-term project effects that may result from sensory pollutants. The DAF will coordinate with the USFWS during plan development and provide the USFWS the monitoring plan for review and approval within three months of project implementation to ensure that potential project related short and long-term effects are detectable and clearly defined.
    - ✓ The monitoring plan will clearly establish pre-project baseline of CRLF average population level within each impacted breeding feature (Honda Creek, Bear Creek, and Santa Ynez River) and clearly define the survey area and methodology. Following project implementation, the DAF will conduct annual surveys utilizing the same methodology within each impacted breeding feature during the breeding season when CRLF are most likely to be encountered.
    - ✓ The monitoring plan will include passive bioacoustics monitoring (Wildlife Acoustics Song-Meter 4 or similar technology) and will establish frog calling behavior baseline within each impacted breeding feature (Honda Creek, Bear Creek, and Santa Ynez River) and any necessary appropriate control sites for purposes of signal characteristic comparison. CRLF calling behavior baseline will include applicable call characteristics (e.g., changes in signal rate, call frequency, amplitude, call timing, call duration, etc.). The DAF will ensure that bioacoustic monitoring conducted is designed to best address confounding factors in order to appropriately characterize impacts of launch, static fire, and SLC-4W landing events on calling behavior. Results will be analyzed in conjunction with long term population data to ensure any observed changes in signal characteristics are not resulting in observable declines in population.
- ✓ The DAF will conduct quarterly night surveys for CRLF and spring tadpole surveys of lower Honda Creek to compare baseline CRLF occupancy data collected over the past 10 years and assess if there are any changes in CRLF habitat occupancy, breeding behavior (calling), and breeding success (egg mass and tadpole densities) on lower Honda Creek. The following will be recorded and measured during the surveys:

- ✓ CRLF detection density (number of frogs per survey hour), following the same survey methods conducted previously at these sites and throughout VSFB.
- ✓ CRLF locations and breeding evidence (e.g., calling, egg masses).
- ✓ Environmental data during surveys (temperature, wind speed, humidity, and dewpoint) to determine if environmental factors are affecting CRLF detection or calling rates.
- ✓ Annual habitat assessments to measure flow rates, stream morphology, depths, and sediment to determine if any changes in CRLF metrics are associated with other environmental factors, such as drought.

✓ Bioacoustic monitoring would be conducted annually during CRLF breeding season (typically November through April, depending on rainfall) to characterize the noise environment and determine if there are changes in calling behaviors as the Proposed Action commences. Passive noise recorders and environmental data loggers (temperature, relative humidity, dew point) would be placed at two suitable breeding locations on lower Honda Creek. Passive bioacoustic recording would occur throughout the entirety of the breeding season using the Wildlife Acoustics Song-Meter 4 (or similar technology) with software that enables autodetection of CRLF calling. The DAF will use bioacoustic monitoring to characterize and analyze impacts of launch, static fire, and SLC-4W landing events on calling behavior during the breeding season to assess whether Falcon 9 noise events affect CRLF calling frequency.

✓ To address potential declining trends that may be a result of the proposed project, the specified threshold criteria is described below:

- ✓ CRLF occupancy, calling rate, or tadpole densities decline from baseline by 15 percent or more and,
- ✓ The 15 percent decline from baseline is maintained for two consecutive years.

✓ If any of these threshold criteria are met and cannot confidently be attributed to other natural- or human-caused catastrophic factors, not related to the Proposed Action, that may eliminate or significantly degrade suitable habitat (see potential scenarios described below), the DAF will mitigate these impacts as discussed under CRLF Mitigation section below. Examples of potential catastrophic scenarios include the following:

- ✓ Fire, unrelated to project activities or launch operations, that directly impacts Honda Canyon and is demonstrated to degrade or eliminate breeding habitat.
- ✓ Landslides or significant erosion events, unrelated to project activities or launch operations, in Honda Canyon that result in the elimination or degradation of CRLF breeding habitat.
- ✓ Drought or climate impacts that quantifiably reduce available aquatic habitat further than what was available during existing baseline.
- ✓ Flash flood events during the breeding season that are more significant than what was experienced during the existing baseline.
  - The DAF will review the supported cause of decline with the USFWS and reach agreement. If cause of declines is determined to be inconclusive, the DAF will implement proposed mitigation.

CRLF Mitigation

✓ The DAF will create new CRLF breeding habitat at a 2:1 ratio (habitat enhanced: habitat affected) for adverse effects to occupied CRLF habitat, as determined above, at the San Antonio Creek Oxbow Restoration Area, an established wetland mitigation site that is located outside of areas impacted

by launch noise on VSFB (Figure 2.2-9). Historically occupied by riparian vegetation, restoration efforts will focus on enhancing this abandoned tract of agricultural land (Figure 2.2-10) to improve San Antonio Creek and provide breeding habitat for CRLF.

- ✓ Restoration, which has already been conducted at this site for other projects, will be conducted in the "expansion area" adjacent to the restoration area (Figure 2.2-11), involve digging a channel that reaches ground water, and use the spoils to create a berm that will be planted with willows (Figure 2.2-12). This method is already being used at the site and has proven successful at creating deep water aquatic habitat, suitable for CRLF breeding, and riparian woodland that simulate naturally occurring high-flow channels.
  - ✓ Actions taken within this area will include site preparation via herbicide application, plowing, container plant installation, seeding, willow pole planting (via water jet, hand-held power auger, or manually driving a steel rod into the ground), and watering via water truck. The mitigation actions for CRLF are included under the existing USFWS Programmatic Biological Opinion (PBO 8-8-12-F-49R) and all applicable avoidance, minimization, and monitoring measures required under the PBO would be implemented.

Western Snowy Plover Measures

SNPL Monitoring

- ✓ The DAF will implement long-term monitoring of annual population and distribution trends associated with SNPL along Surf Beach. The DAF will develop a monitoring plan that adequately addresses potential short- and long-term project effects that may result from sensory pollutants. The DAF will coordinate with the USFWS during plan development and provide the USFWS the monitoring plan for review and approval within three months of project implementation to ensure that potential project related short and long-term effects are detectable and clearly defined. The SNPL monitoring plan will include a clear, established baseline annual variation and decline threshold that would trigger proposed mitigation (see below).
- ✓ The DAF will augment the current SNPL monitoring program on VSFB by performing acoustic monitoring and geospatial analysis of nesting activity on South Surf Beach to assess potential adverse effects from Falcon 9 noise events.
  - ✓ The current Base-wide SNPL monitoring program estimates breeding effort, nest fates, and fledging success while recording patterns of habitat use through the season. This program will be augmented for the Proposed Action by placing sound level meters (SLMs) immediately inland of South Surf Beach to characterize the noise environment and any related launch and landing associated disturbance.
  - ✓ The DAF will perform geospatial analysis annually to identify declines in the SNPL population, nesting activity, and reproductive success that may result from cumulative effects of multiple launches and landings from SLC-4.
- ✓ To address potential declining trends that may be a result of the Proposed Action, the specified threshold criteria is described below.
  - ✓ Geospatial analysis shows a statistically significant decline (defined as a decline greater than the baseline annual variation in these variables over the past 10 years at South Surf Beach) in population or reproductive success, and
  - ✓ the decline from baseline maintains over two consecutive years within the areas impacted by noise from the Falcon 9.

- ✓ If any of these threshold criteria are met and cannot confidently be attributed to other natural- or human-caused catastrophic factors, not related to the proposed action, that may eliminate or significantly degrade suitable habitat (see potential scenarios described below), the DAF will mitigate for these impacts as discussed under the SNPL Mitigation section below. Examples of potential catastrophic scenarios include the following:
  - ✓ Significantly higher levels of tidal activity, predation, etc. as compared with the existing baseline and demonstrable across remainder of base population.
  - ✓ Significant avian disease demonstrable across the recovery unit.
  - ✓ Separate work activities (i.e., restoration efforts) not related to project.
- ✓ The DAF will review the supported cause of decline with the USFWS and reach agreement. If the cause of declines is determined to be inconclusive, the DAF will implement proposed mitigation.
- ✓ Motion triggered video cameras will be used during the breeding season (1 March through 30 September) to determine nest fates and potential impacts to nests due to launches and landings to reduce disturbance associated with human activity within breeding habitat.
  - ✓ The DAF will monitor active nests at South Surf Beach with motion triggered video cameras during the breeding season at whichever of the following is greater within the modeled 4.0 psf zone to assess potential novel effects that may result from frequent launching: (i) 10 percent of active SNPL nests, or (ii) 4 active SNPL nests. The DAF will monitor at whichever the following is greater within the modeled 3.0 to 4.0 psf zone: (iii) 10 percent of active SNPL nests, or (iv) 2 active SNPL nests. The DAF will monitor at whichever the following is greater within the modeled 2.0 to 3.0 psf zone: (v) 5 percent of active SNPL nests, or (vi) 4 active SNPL nests.
  - ✓ Cameras will be placed in a manner to minimize disturbance to nesting plovers; this will be determined in the field based on the best judgement of a permitted biologist.
  - ✓ The DAF will employ camera technology that is capable of long-term recording and time marking the moment of disturbance events.
  - ✓ The DAF will implement landscape level camera monitoring in conjunction with individual nest cameras to document SNPL response to launch and sonic boom noise and overpressures. The landscape level camera(s) will be capable of long-term recording, time marking the moment of disturbance events, and deployed adjacent to areas of highest density nesting to best capture population level reaction. The DAF will coordinate camera installation and placement with a USFWS approved biologist to ensure no additional effects would occur (i.e., perching for raptors).
  - ✓ The DAF will review SNPL nest camera recordings as soon as possible.
  - ✓ The DAF will rescue any SNPL eggs abandoned on Surf Beach during disturbance events. The DAF will develop and/or fund a program to incubate any rescued abandoned eggs and release fledglings.

SNPL Mitigation

- ✓ The DAF will increase predator removal efforts to include the non-breeding season, particularly focusing on raven removal at and adjacent to VSFB beaches.
- ✓ Given that all available SNPL nesting habitat on VSFB has already or will soon (under current planning) be restored, the biggest factor reducing nesting success is nest predation with significant impacts from ravens. The raven population, which has historically been absent to rare in the region, is now common, and has increased substantially over the past two decades due to human-

related factors that have allowed their numbers to increase and range to expand. As documented, the raven population continues to increase each year. Off-season depredation will help reduce the population on Base prior to the breeding season which should increase nest success.

- ✓ Predator control actions will include trapping, shooting, and tracking SNPL predators from VSFB beaches and surrounding areas on Base. The mitigation actions for SNPL are permitted under an existing USFWS Biological Opinion (BO; 8-8-12-F-11R; USFWS 2015a) and all applicable avoidance, minimization, and monitoring measures required under BO 8-8-12-F-11R will be implemented. CEIEA also maintains a USFWS depredation permit.

California Least Turn Measures

LETE Monitoring

- ✓ The DAF will implement long-term monitoring of annual population and distribution trends associated with California least tern (LETE; *Sterna antillarum browni*) at Purisima Point. The DAF will develop a monitoring plan that adequately addresses potential short- and long-term project effects that may result from sensory pollutants. The DAF will coordinate with the USFWS during plan development and provide the USFWS the monitoring plan for review and approval within three months of project implementation to ensure that potential project related short and long-term effects are detectable and clearly defined. The LETE monitoring plan will include a clear, established baseline annual variation and decline threshold that would trigger proposed mitigation (see below).
- ✓ The DAF will augment the current LETE monitoring program on VSFB by performing acoustic monitoring and geospatial analysis of nesting activity at the Purisima LETE colony to assess potential adverse effects from Falcon 9 noise events.
  - ✓ The current Base-wide LETE monitoring program estimates breeding effort, nest fates, and fledging success while recording patterns of habitat use through the season. This program will be augmented for the Proposed Action by placing SLMs immediately inland of the LETE colony at Purisima Point to characterize the noise environment and any related launch and landing associated disturbance.
  - ✓ The DAF will perform geospatial analysis annually to identify declines in the LETE population, nesting activity, and reproductive success that may result from cumulative effects of multiple launches and landings from SLC-4.
- ✓ To address potential declining trends that may be a result of the Proposed Action, the specified threshold criteria is described below.
  - ✓ Geospatial analysis shows a statistically significant decline (defined as a decline greater than the baseline annual variation in these variables over the past 10 years at Purisima Point) in population or reproductive success, and
  - ✓ the decline from baseline maintains over two consecutive years within the areas impacted by noise from the Falcon 9.
- ✓ If any of these threshold criteria are met and cannot confidently be attributed to other natural- or human-caused catastrophic factors, not related to the Proposed Action, that may eliminate or significantly degrade suitable habitat (see potential scenarios described below), the DAF will mitigate for these impacts as discussed under the LETE Mitigation section below. Examples of potential catastrophic scenarios include the following:
  - ✓ Significantly higher levels of predation, lower prey availability, etc. as compared with the existing baseline and demonstrable across remainder of base population.

- ✓ Significant avian disease demonstrable across the recovery unit.
- ✓ Separate work activities (i.e., restoration efforts) not related to project.

✓ The DAF will review the supported cause of decline with the USFWS and reach agreement. If the cause of declines is determined to be inconclusive, the DAF will implement proposed mitigation.

✓ Motion triggered video cameras will be used during the breeding season (typically 15 April to 15 August) to determine nest fates and potential impacts to nests due to launches and landings to reduce disturbance associated with human activity within breeding habitat.

- ✓ The DAF will monitor at whichever of the following is greater within the Purisima Point colony: (i) 10 percent of active LETE nests, or (ii) 4 active LETE nests.
- ✓ Cameras will be placed in a manner to minimize disturbance to nesting terns; this will be determined in the field based on the best judgement of a permitted biologist.
- ✓ The DAF will employ camera technology that is capable of long-term recording and time marking the moment of disturbance events.
- ✓ The DAF will implement landscape level camera monitoring in conjunction with individual nest cameras to document LETE response to launch and sonic boom noise and overpressures. The landscape level camera(s) will be capable of long-term recording, time marking the moment of disturbance events, and deployed adjacent to areas of highest density nesting to best capture population level reaction. The DAF will coordinate camera installation and placement with a USFWS approved biologist to ensure no additional effects would occur (i.e., perching for raptors).
- ✓ The DAF will review LETE nest camera recordings as soon as possible.

The DAF will rescue any LETE eggs abandoned at the Purisima Point colony during disturbance events. The DAF will develop and/or fund a program to incubate any rescued abandoned eggs and release fledglings.

LETE Mitigation

✓ The DAF will increase predator removal efforts to include the non-breeding season, particularly focusing on raven removal at and adjacent to VSFB beaches.

✓ The biggest factor reducing nesting success is nest predation. Off-season depredation will help reduce the population on Base prior to the breeding season which should increase nest success.

Predator control actions will include trapping, shooting, and tracking LETE predators from VSFB beaches and surrounding areas on Base. The mitigation actions for LETE are permitted under an existing USFWS BO (8-8-12-F-11R; USFWS 2015a) and all applicable avoidance, minimization, and monitoring measures required under BO 8-8-12-F-11R will be implemented. CEIEA also maintains a USFWS depredation permit.

California Condor Measures

Prior to any launch, the DAF will determine if any California condors (*Gymnogyps californianus*) are present by coordinating with the USFWS and Ventana Wildlife Society personnel. The DAF will contact the USFWS if California condors appear to be near or within the area affected by a launch from SLC-4. In the unlikely event that a California condor is nearby, qualified biologists will monitor California condor movements in the vicinity of VSFB and coordinate with the USFWS to analyze data before, during, and after launch events to determine whether any changes in movement occur.

The DAF will coordinate with current USFWS personnel, including Arianna Punzalan, Supervisory Wildlife Biologist (arianna_punzalan@fws.gov, (805) 377-5471); Joseph Brandt, Wildlife Biologist (joseph_brandt@fws.gov, 805-677-3324 or 805-644-1766, extension 53324), or Steve Kirkland, California Condor Field Coordinator, USFWS California Condor Recovery Program (steve_kirkland@fws.gov, 805-644-5185, extension 294). The Space Force will also coordinate with current Ventana Wildlife Society personnel, Joe Burnett (joeburnett@ventanaws.org, 831-800-7424).
Marbled Murrelet Measures
Annual marbled murrelet (*Brachyramphus marmoratus*) population surveys would continue to be conducted at the current levels performed by the DAF to monitor the frequency and distribution of marbled murrelet within the action area.

A.3 MARINE BIOLOGICAL RESOURCES

The DAF and qualified SpaceX personnel or contractor staff would ensure that all applicable minimization, monitoring, and avoidance measures in VSFB's LOA, listed in Table A.3-1, would be implemented during operation of the Proposed Action.

Table A.3-1 Minimization, Monitoring, and Avoidance Measures

Minimization, Monitoring, and Avoidance Measures
✓ Sonic boom modeling (commercially available modeling software [PCBoom] or an acceptable substitute) would be completed prior to each launch to verify and estimate the overpressure levels and footprint.
✓ Between 1 January and 31 July, pinniped monitoring at south Base haulout locations would commence at least 72 hours prior to a launch event and continue until at least 48 hours after each event. Monitoring data collected would include multiple surveys each day that record the species, number of animals hauled out, general behavior, presence of pups, age class, and gender. Environmental conditions such as tide, wind speed, air temperature, and swell would also be recorded. ✓ Acoustic and biological monitoring will be conducted on the NCI if the sonic boom model indicates that overpressures from a boom will reach or exceed the psf levels of ≥ 2.0 psf (March–July), ≥ 3.0 psf (August–September), or ≥ 4.0 psf (October–February). Biological monitoring will be conducted at the closest significant haulout site to the modeled sonic boom impact area.
✓ The DAF will ensure that a USFWS-approved biologist monitors southern sea otters from a monitoring location within occupied habitat on VSFB where landing events at SLC-4W generate boost-back sonic booms of 2.0 psf or greater (i.e., Sudden Flats). Upon establishment of any new southern sea otter populations within areas of potential impact from project-related activities, the DAF will consider additional monitoring locations; ✓ A USFWS-approved biologist will conduct daily counts of sea otters from the monitoring location when otters are most likely rafting (between 9:00AM and 12:00PM) beginning 3 days before and continuing 3 days after boost-back and landing events, noting any mortality, injury, or abnormal behavior. Personnel will use both binoculars (10X) and a high-resolution (50–80X) telescope for monitoring; and

✓ Acoustic recording equipment will be deployed at or near the monitoring location to document and quantify sonic boom levels.
✓ The DAF will submit a report, detailing results of the monitoring program, to the Office of Protected Resources, NMFS, and the West Coast Regional Administrator, NMFS, in compliance with the requirements of the current LOA. ✓ Discoveries of injured or dead marine mammals, irrespective of cause, would be reported to the Office of Protected Resources, NMFS, and the West Coast Regional Stranding Coordinator, NMFS. Specific protocol would be followed depending on the cause of the event, if cause is unknown, and whether injury or death was relatively recent.
To reduce the risk of injury or mortality of ESA-listed species in the marine environment, the following EPMs will be implemented during first stage and fairing recovery operations: ✓ The DAF will ensure that all personnel associated with vessel support operations are instructed about marine species and any critical habitat protected under the ESA that could be present in the proposed landing area. Personnel will be advised of the civil and criminal penalties for harming, harassing, or killing ESA-listed species. ✓ Support vessels will maintain a minimum distance of 150 ft (45 m) from sea turtles and a minimum distance of 300 ft (90 m) from all other ESA-listed species. If the distance ever becomes less, the vessel will reduce speed and shift the engine to neutral. Engines would not be re-engaged until the animal(s) are clear of the area. ✓ Support vessels will maintain an average speed of 10 knots or less. ✓ Support vessels will attempt to remain parallel to an ESA-listed species' course when sighted while the watercraft is underway (e.g., bow-riding) and avoid excessive speed or abrupt changes in direction until the animal(s) has left the area. ✓ The DAF will immediately report any collision(s), injuries, or mortalities to ESA-listed species to the appropriate NMFS contact.
Vessels will enter the harbor, to the extent possible, only when the tide is too high for pinnipeds to haul-out on the rocks. The vessel will reduce speed to 1.5 to 2 knots (1.5-2.0 nm/hr) once the vessel is within 3 mi of the harbor. The vessel will enter the harbor stern first, approaching the wharf and mooring dolphins at less than 0.75 knots.
Vessels using the harbor will follow a predetermined route that limits crossing kelp beds.
No vessels will anchor within kelp beds or hard-bottom habitat outside of the dredge footprint, and no vessel anchors within the dredge footprint will be placed in kelp or hard bottom habitat.
If nighttime activities are to occur at any time from dusk to dawn, the required lighting will be turned on before dusk and left on the entire night. Lights will not be turned on or off between dusk and dawn.
Activities that could result in the startling of wildlife in the vicinity of the harbor will be allowed so long as they are initiated before dusk and not interrupted by long periods of quiet (in excess of 30 minutes). If such activities cease temporarily during the night, they will not be reinitiated until dawn.
Starting-up of activities (either initially or if activities have ceased for more than 30 minutes) will include a gradual increase in noise levels if pinnipeds are in the area.
The restrictions on access to the intertidal area will be included in the personnel orientations provided at project startup and for new employees.
The tug vessels and barge will be periodically cleaned as necessary to avoid impacts related to the transfer of non-native invasive pests and vegetation to VSFB Harbor.

A.4 WATER RESOURCES

The following measures, as described in Table A.4-1, would be implemented to minimize impacts on water resources and stormwater:

Table A.4-1: Water Resources and Stormwater Measures

Water Resources and Stormwater Measures
✓ The Proposed Action shall comply with storm water management plans, including Best Management Practices (BMPs) following the latest California Stormwater Quality Association's Stormwater Best Management Practices Handbook.
✓ Spring Canyon will be routinely monitored for erosion where vegetation management occurs. BMPs would be utilized as needed to reduce erosion.
✓ SpaceX will continue to ensure that water ejected from the flame bucket during launches does not result in any overland surface flow reaching Spring Canyon by maintaining current v-ditches within the SLC-4 fenceline and routinely assessing whether any additional diversion structures are necessary.
✓ All equipment will be properly maintained and free of leaks during operation, and all necessary repairs carried out with proper spill containment.
✓ Fueling equipment will only occur in pre-designated areas with spill containment materials placed around the equipment before refueling. Stationary equipment will be outfitted with drip pans and hydrocarbon absorbent pads.
✓ Adequate spill response supplies will be maintained at the site during operation for immediate response and clean-up of any fuel spills.
✓ Hazardous materials will be stored in proper containers, placed in proper containment facilities covered prior to rain events.
✓ Trash disposal containers will be covered at all times.
✓ SpaceX and its contractors will implement best management practices to prepare for and respond to a spill. These practices include fueling equipment at least 100 ft from the water, fueling only in areas designed to capture runoff or spilled fuel, and maintaining spill response kits.

A.5 CULTURAL RESOURCES

SpaceX personnel or contractor staff will ensure the following measures, described in Table A.5-1, would be implemented to minimize impacts on sensitive archaeological resources:

Table A.5-1: Cultural Resources Measures

Cultural Resources Measures
✓ If previously undocumented cultural resources are discovered during maintenance activities, work would stop, and the procedures established in 36 C.F.R. 800.13 and the VSFB Integrated Cultural Resources Management Plan shall be followed.

APPENDIX B – SENSITIVE SPECIES AND WILDLIFE OCCURRENCE WITHIN THE PROPOSED ACTION AREA

Table B-1 includes all special status species records and survey locations from multiple sources in the noise footprint. Figures B-2 through B-5 include federally listed species localities within the noise footprint, which are discussed further below. Figures B-6 through B-9 include localities of additional special status species within the noise footprint, gathered from DAF long-term monitoring and annual survey efforts and the CNDDB. Note that there were no special status amphibian species listed in the CNDDB within the project footprint, except for the CRLF (*Rana draytonii*), which are duplicative records of those shown in Figure B-2.

Table B-1: Federal and State Special Status Species Occurrence Within the Proposed Action Area

Species	Status		Occurrence within the Proposed Action Area
	USFWS	CDFW	
Invertebrates			
Crotch bumble bee (*Bombus crotchii*)	-	SSC	May forage and nest in the noise footprint.
Monarch butterfly (*Danaus plexippus*)	Proposed	Special Animal*	Overwintering stands within noise footprint.
Fish			
Tidewater goby (*Eucyclogobius newberryi*)	FT	-	Historic occurrence in Honda Creek; surveys have not detected since 2001. Present in San Antonio Creek.
Unarmored Threespine Stickleback (*Gasterosteus aculeatus*)	FE	SE	Currently extirpated; historic introduction in Honda Creek in 1984. No individuals have been detected in Honda Creek since the late 1990's. Present in San Antonio Creek.
Arroyo chub (*Gila orcuttii*)	-	SSC	Not present on Honda Creek; present on San Antonio Creek.
Amphibians			
California red-legged frog (*Rana draytonii*)	FT	SSC	Documented in adjacent aquatic habitats within noise footprint.
Reptiles			
Northern legless lizard (*Anniella pulchra*)	-	SSC	Assumed present within the noise footprint due to suitable habitat and adjacent CNDDB record.
Southwestern pond turtle (*Actinemys pallida*)	-	SSC	Documented in the upper reach of Honda Creek.
Two-striped garter snake (*Thamnophis hammondii*)	-	SSC	Documented in Honda Creek.
Birds			
Allen's hummingbird (*Selasphorus sasin*)	BCC	-	Documented within noise footprint.

Species	Status		Occurrence within the Proposed Action Area
	USFWS	CDFW	
Bald eagle (*Haliaeetus leucocephalus*)	BCC; BGEPA	SE; Fully Protected	Documented occasional flyovers; foraging habitat within noise footprint. Unlikely to be present.
Black oystercatcher (*Haematopus bachmani*)	BCC	-	Documented on sandy beaches and cliffs of VSFB shoreline within the noise footprint.
Black skimmer (*Rynchops niger*)	BCC	-	Documented on nearshore ocean within the noise footprint.
Brant (*Branta bernicla*)	-	SSC	Documented on nearshore ocean within the noise footprint
Burrowing owl (*Athene cunicularia*)	BCC	SSC	Likely: winters in burrows in grassland areas impacted by noise. Breeding on VSFB has not been documented in optimal breeding habitat on Base since 1984 (reflects a well-documented county-wide decline of the species).
California brown pelican (*Pelecanus occidentalis californicus*)	-	Fully Protected	Documented in nearshore ocean waters and roosts on beaches and rocks within the noise footprint.
California condor (*Gymnogyps californianus*)	FE	SE	Unlikely: may stray into region on occasion. One documented brief occurrence on VSFB in 2017.
Costa's hummingbird (*Calypte costae*)	BCC	-	Nesting habitat in Honda Canyon and erosional wash habitat impacted by noise.
Golden eagle (*Aquila chrysaetos*)	BGEPA	Fully Protected	Documented in areas within noise footprint
Lawrence's goldfinch (*Spinus lawrencei*)	BCC	-	Documented in shrub and riparian habitat within noise footprint.
Loggerhead shrike (*Lanius ludovicianus*)	BCC	SSC Nesting	Documented in shrub and riparian habitat within noise footprint.
Long-billed curlew (*Numenius americanus*)	BCC	-	Documented on rocky coastline at low tide and beaches within noise footprint.
Marbled godwit (*Limosa fedoa*)	BCC	-	Documented on sandy beaches and rocky coastline at low tide within noise footprint.
Marbled murrelet (*Brachyramphus marmoratus*)	FT	SE	Documented in nearshore ocean waters within noise footprint.
Northern harrier (*Circus hudsonius*)	-	SSC Nesting	Documented in grassland within noise footprint.
Nuttall's woodpecker (*Dryobates nuttallii*)	BCC	-	Documented in riparian habitat within noise footprint.

Species	Status		Occurrence within the Proposed Action Area
	USFWS	CDFW	
Oak titmouse (*Baeolophus inornatus*)	BCC	-	Documented in riparian and non-native tree habitat within noise footprint.
Peregrine falcon (*Falco peregrinus anatum*)	BCC Nesting	Fully Protected Nesting	Documented in coastal habitat within noise footprint.
Short-billed dowitcher (*Limnodromus griseus*)	BCC	-	Documented on rocky coastline at low tide and beaches within noise footprint.
Whimbrel (*Numenius phaeopus*)	BCC	-	Documented on rocky coastline at low tide and beaches within noise footprint.
Western snowy plover (*Charadrius nivosus nivosus*)	FT; BCC	SSC Nesting	Documented on rocky coastline at low tide, nests on sandy beaches within noise footprint.
Willet (*Tringa semipalmata*)	BCC	-	Documented on rocky coastline at low tide and beaches impacted by noise.
White-tailed kite (*Elanus leucurus*)	-	Fully Protected Nesting	Documented in riparian and non-native tree habitat within noise footprint.
Yellow warbler (*Setophaga petechia*)	BCC	SSC Nesting	Documented in riparian habitat within noise footprint.
Terrestrial Mammals			
Pallid bat (*Antrozous pallidus*)	-	SSC	Documented within the noise footprint.
Townsend's big-eared bat (*Corynorhinus townsendii*)	-	SSC	Documented within the noise footprint.
Spotted bat (*Euderma maculatum*)	-	SSC	Documented within the noise footprint.
Western red bat (*Lasiurus blossevillii*)	-	SSC	Documented within the noise footprint.
Western mastiff bat (*Eumops perotis californicus*)	-	SSC	Documented within the noise footprint.
San Diego desert woodrat (*Neotoma lepida intermedia*)	-	SSC	Documented within the noise footprint.
American badger (*Taxidea taxus*)	-	SSC	Documented within noise footprint.

Notes: BGEPA = Bald and Golden Eagle Protection Act; FE = Federally Endangered Species; FT = Federally Threatened Species; SE = State Endangered Species; SSC = California State Species of Special Concern; SE = State Endangered Species; SSC = State Candidate Species; BCC = Federal Bird of Conservation Concern

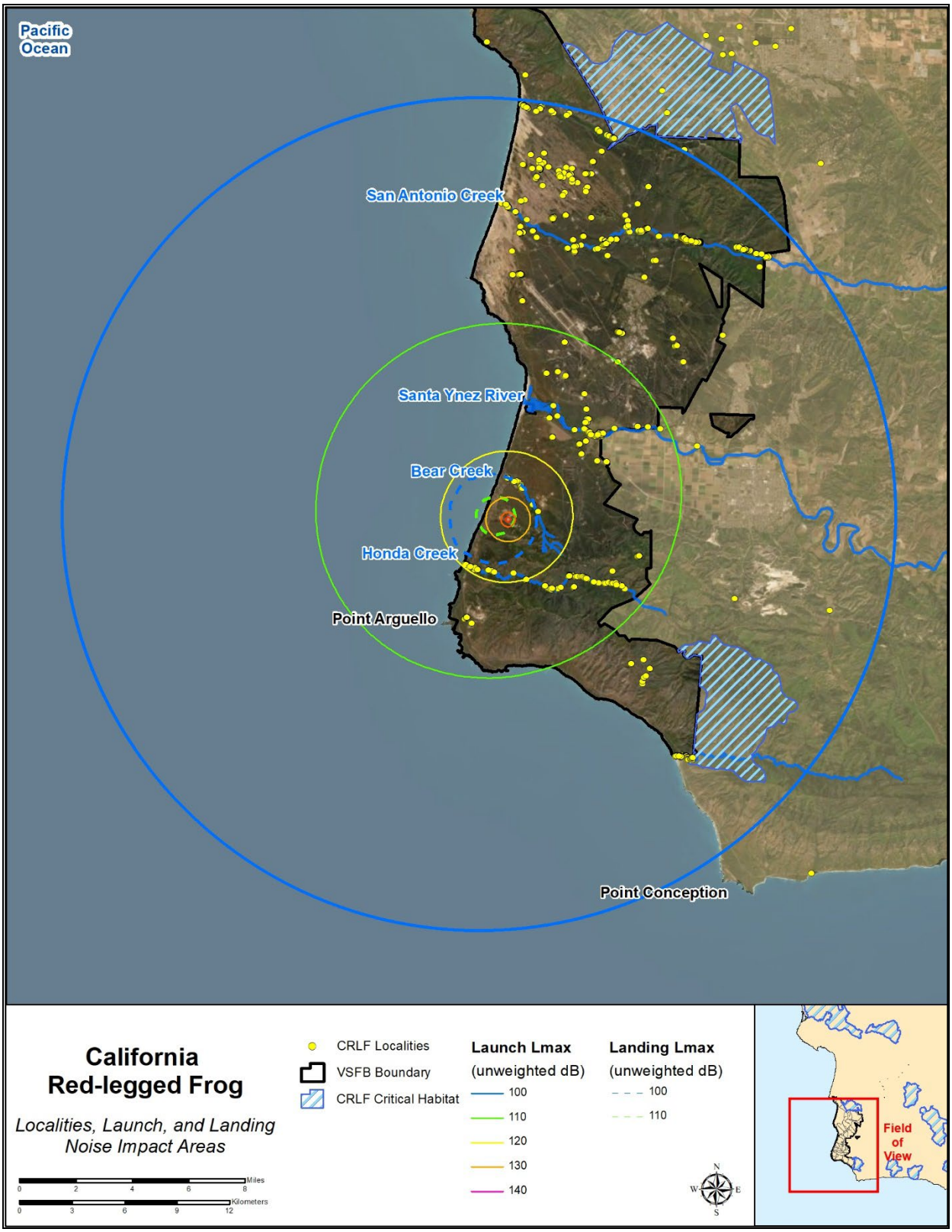


Figure B-5-1: CRLF frog localities within the noise footprint (Source: DAF long term annual surveys and monitoring)

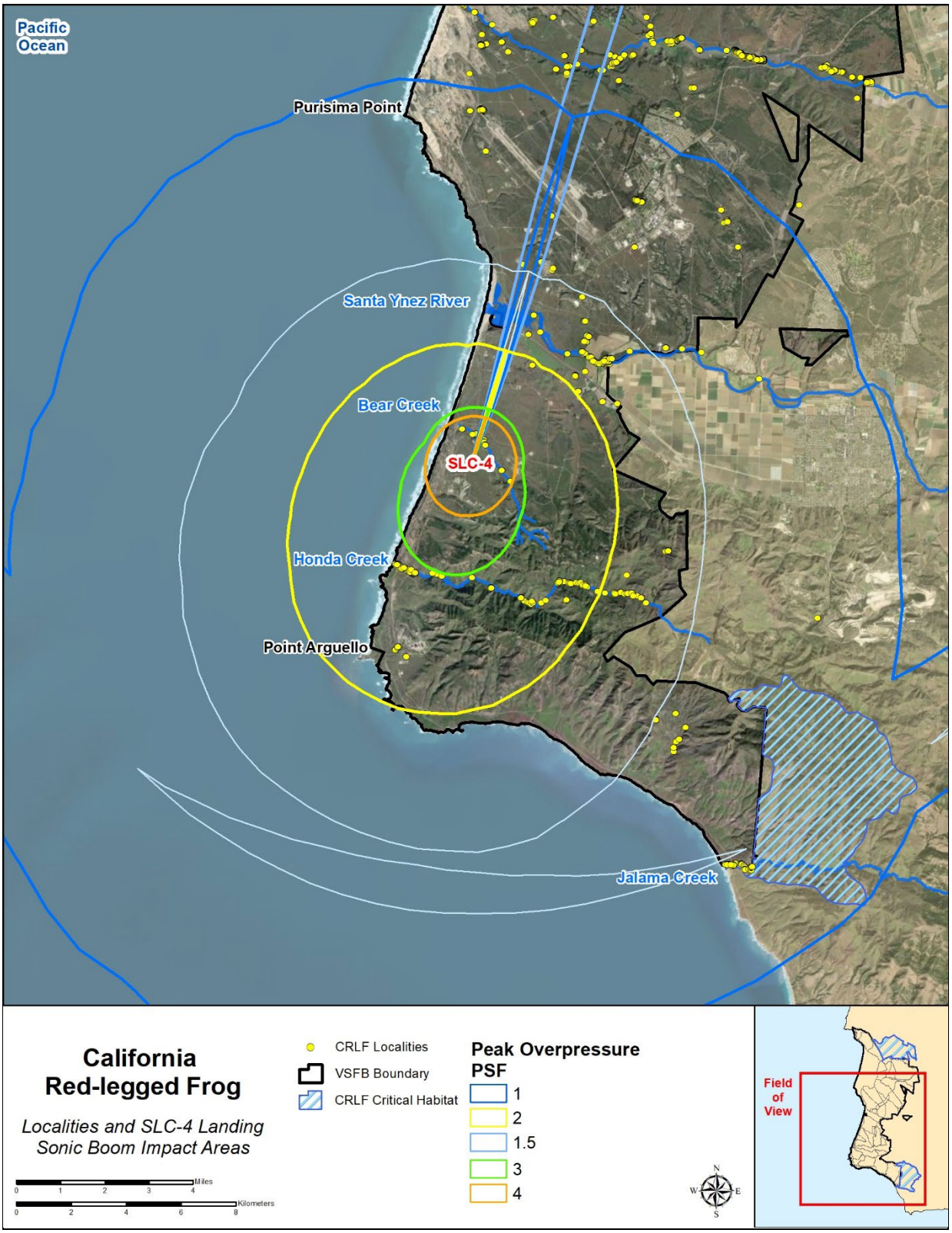


Figure B-5-1: CRLF localities within the sonic boom footprint (Source: DAF long term annual surveys and monitoring)

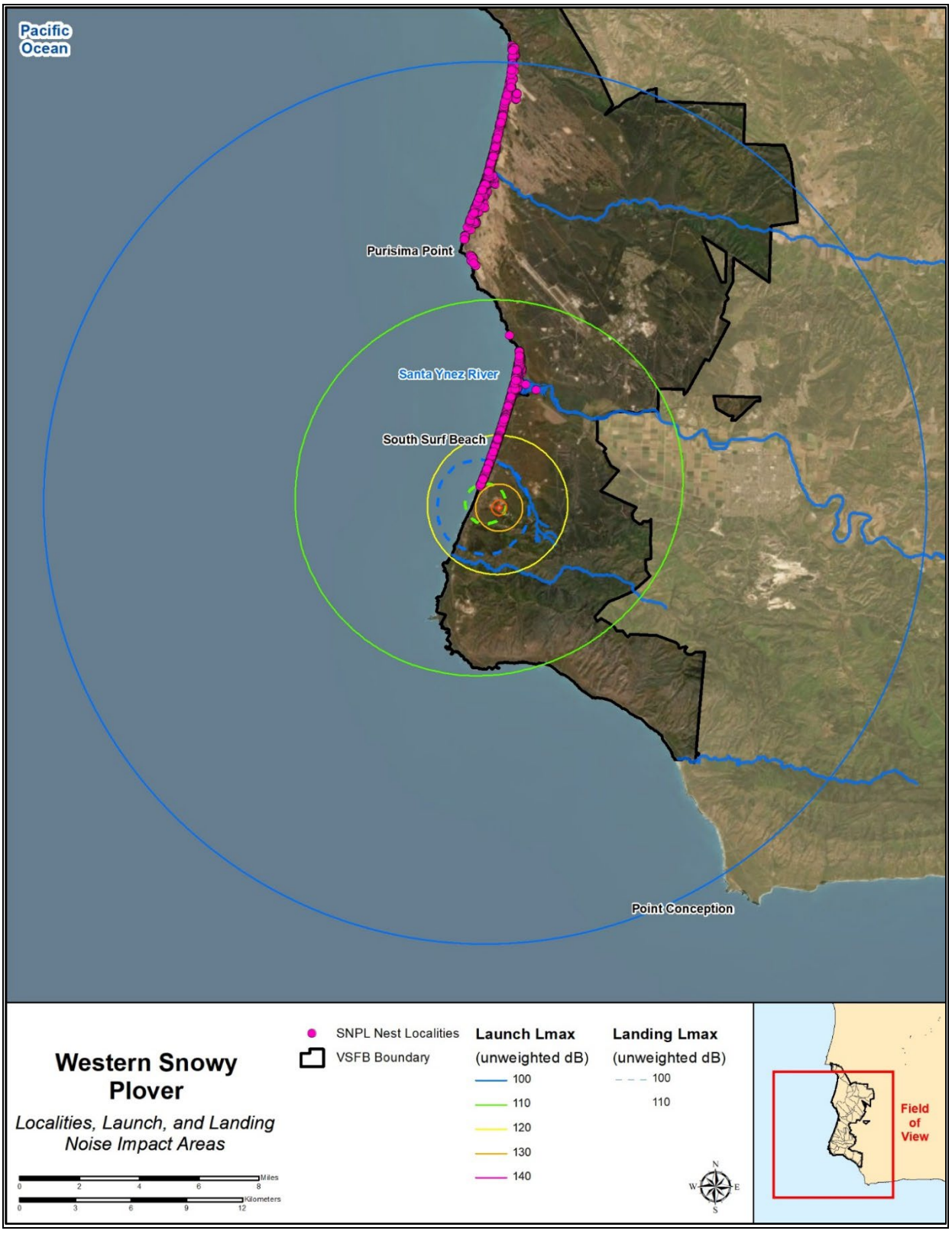


Figure B-5-2: Western snowy plover nest localities within the noise footprint (Source: DAF long term annual surveys and monitoring)

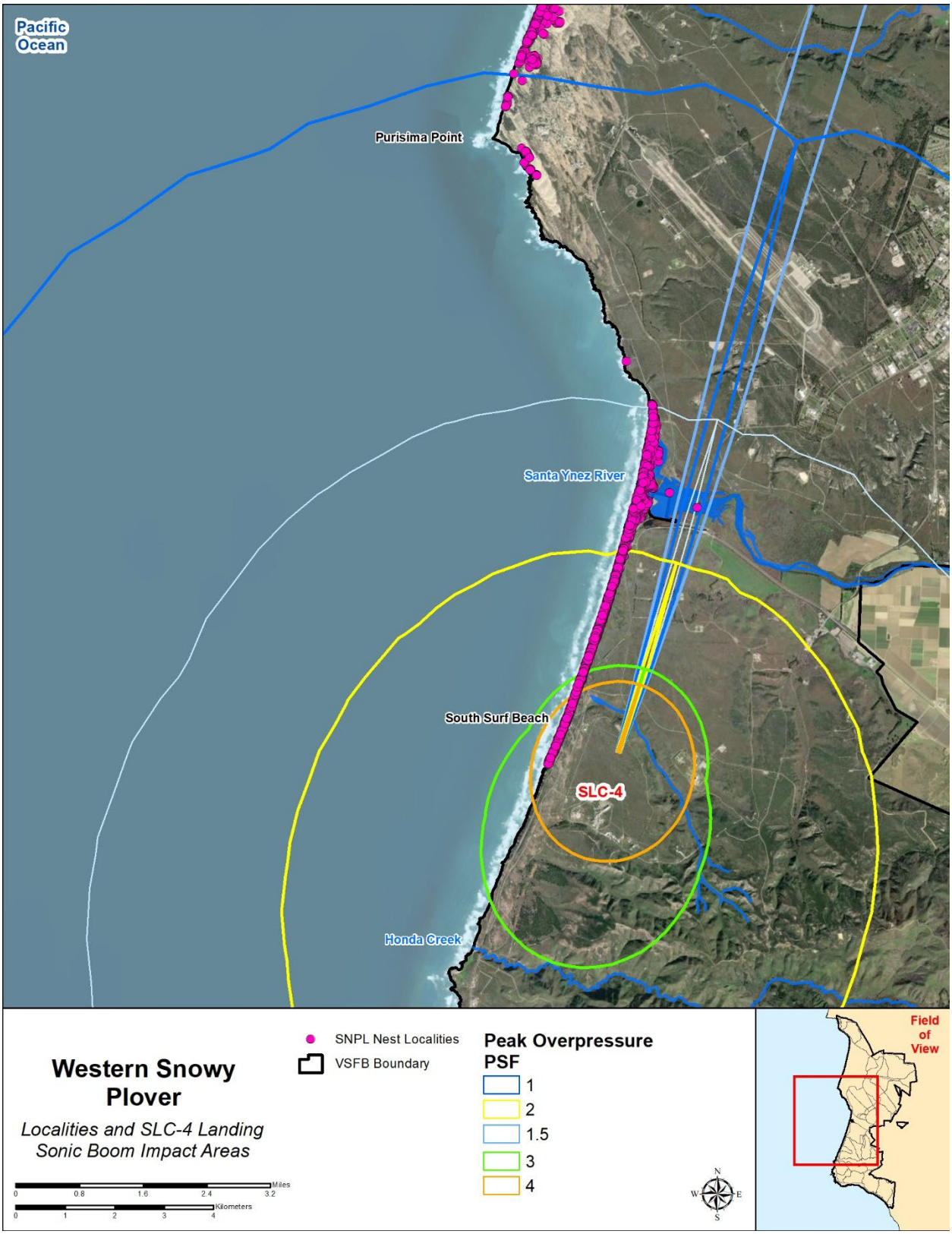
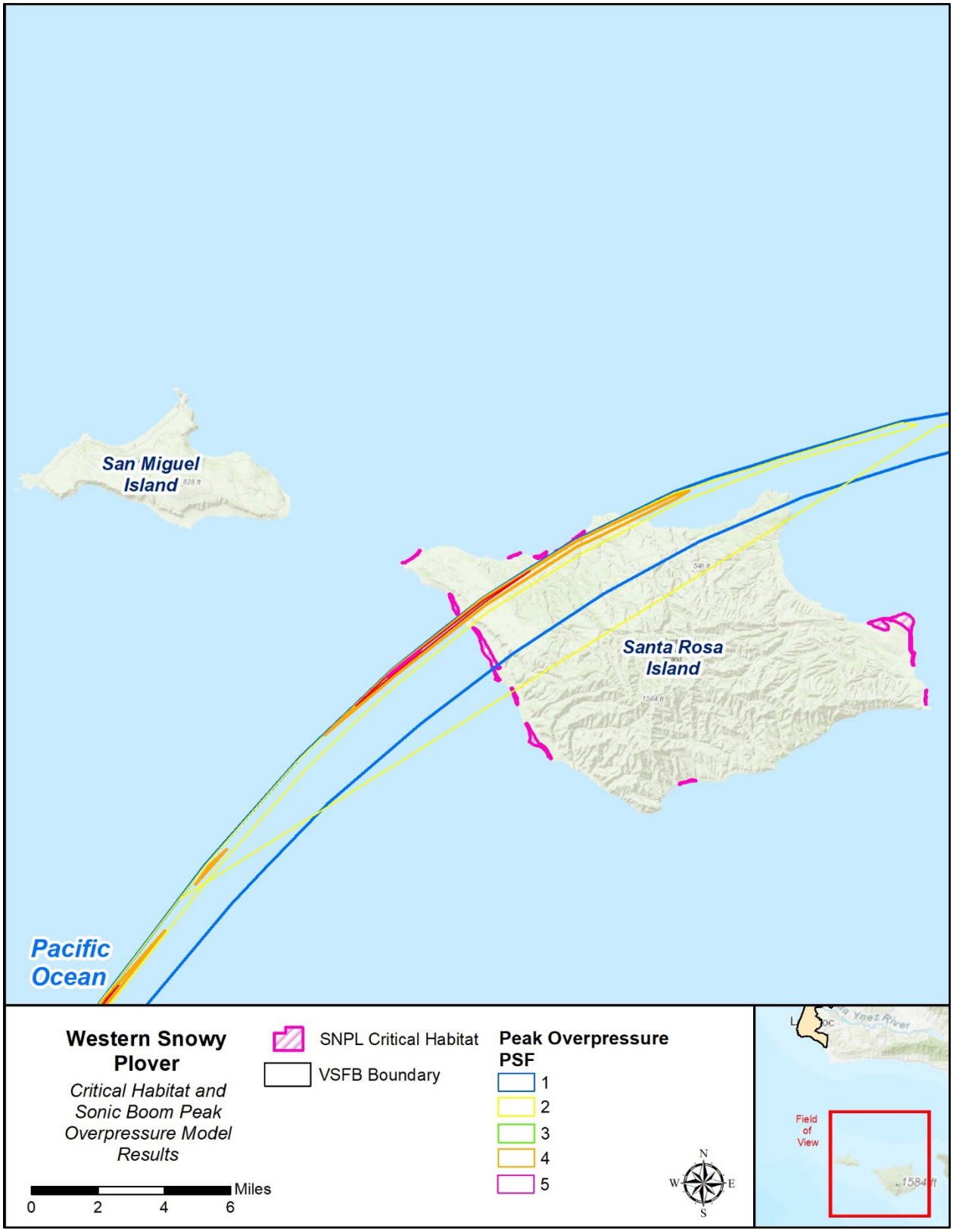


Figure B-5-4: Western snowy plover nest localities within the sonic boom footprint (Source: DAF long term annual surveys and monitoring)



B-5-5: Western snowy plover nest localities within the sonic boom footprint (Source: DAF long term annual surveys and monitoring)

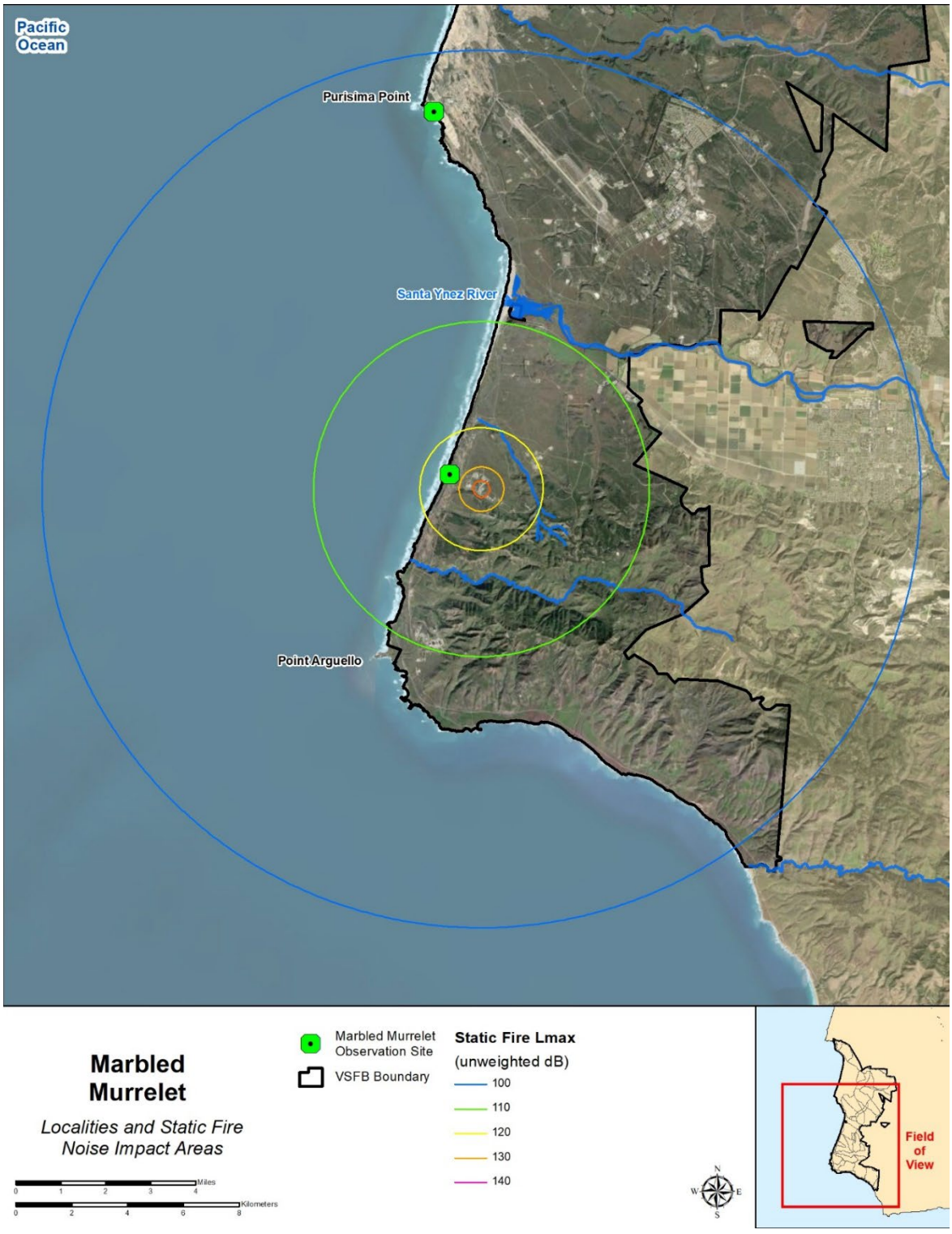


Figure B-5-6: Marbled murrelet observation sites within the noise footprint. (Note: the observation sites represent the location of the surveyor; the birds were observed in the ocean hundreds to thousands of feet offshore; Source: eBird 2022)

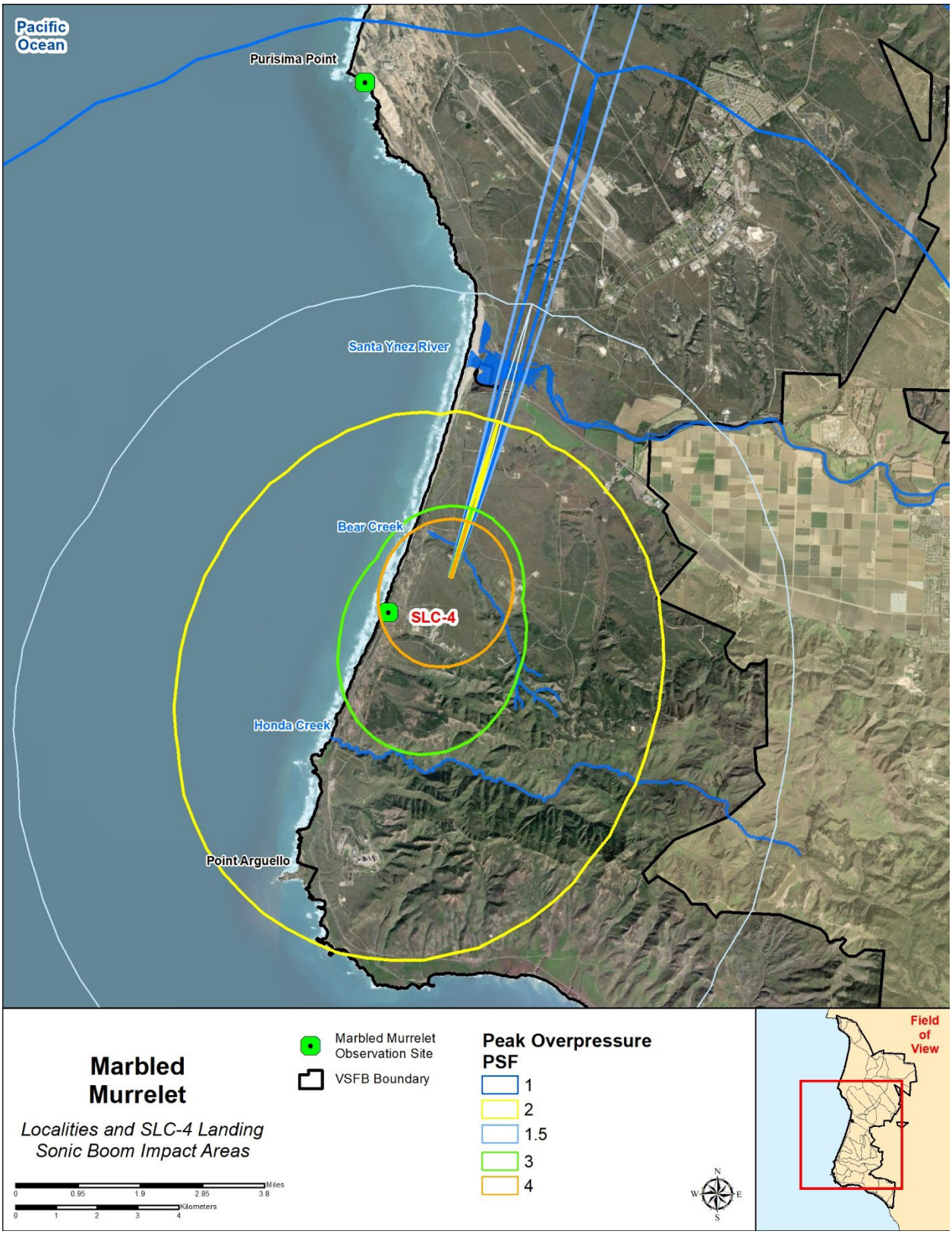


Figure B-5-7: Marbled murrelet nesting records and sample sonic boom model results for SLC-4W landing events.

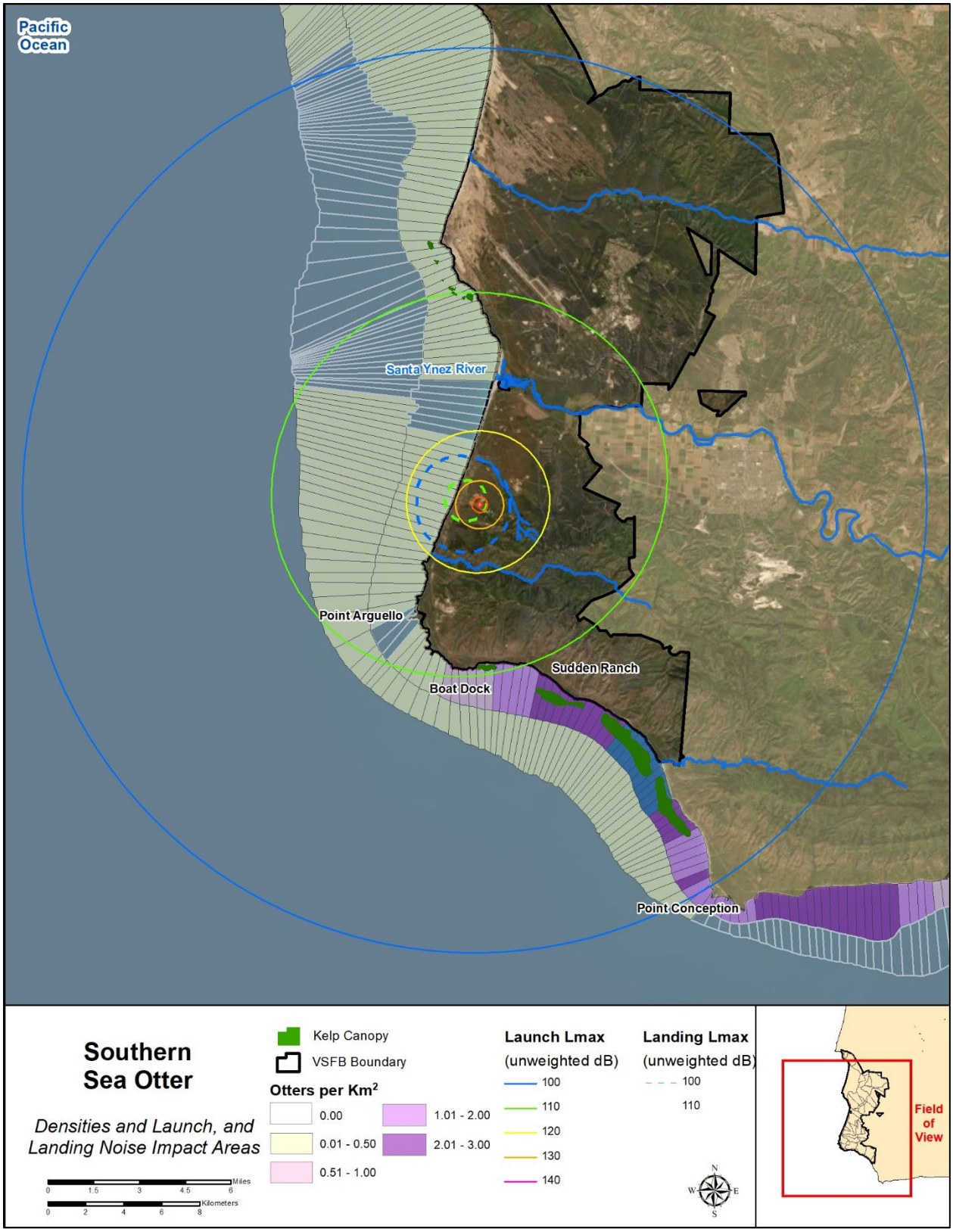


Figure B-5-8: Southern sea otter densities offshore within the noise footprint (Source: USGS 2020)

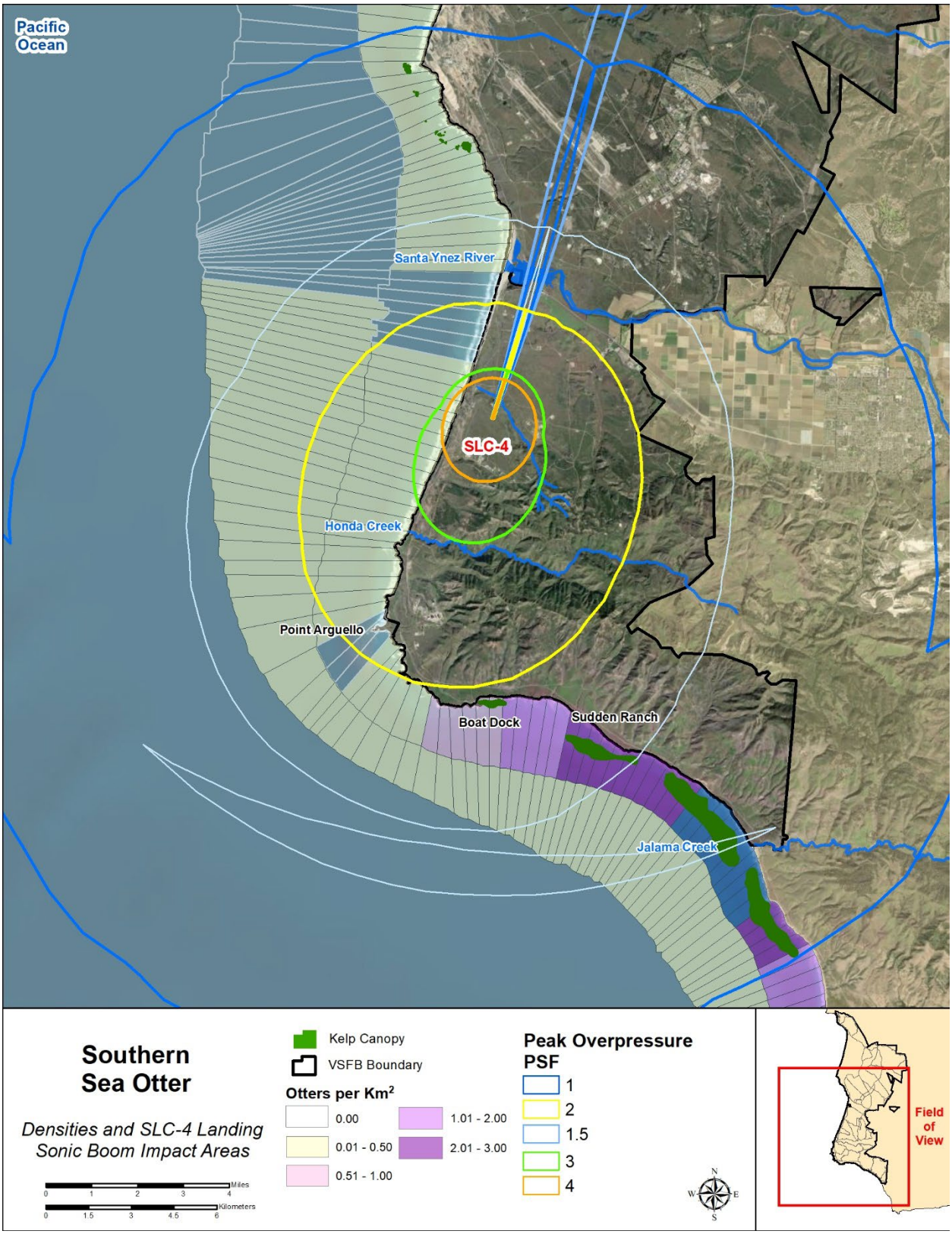


Figure B-5-9: Southern sea otter densities offshore within the sonic boom footprint (Source: USGS 2020)

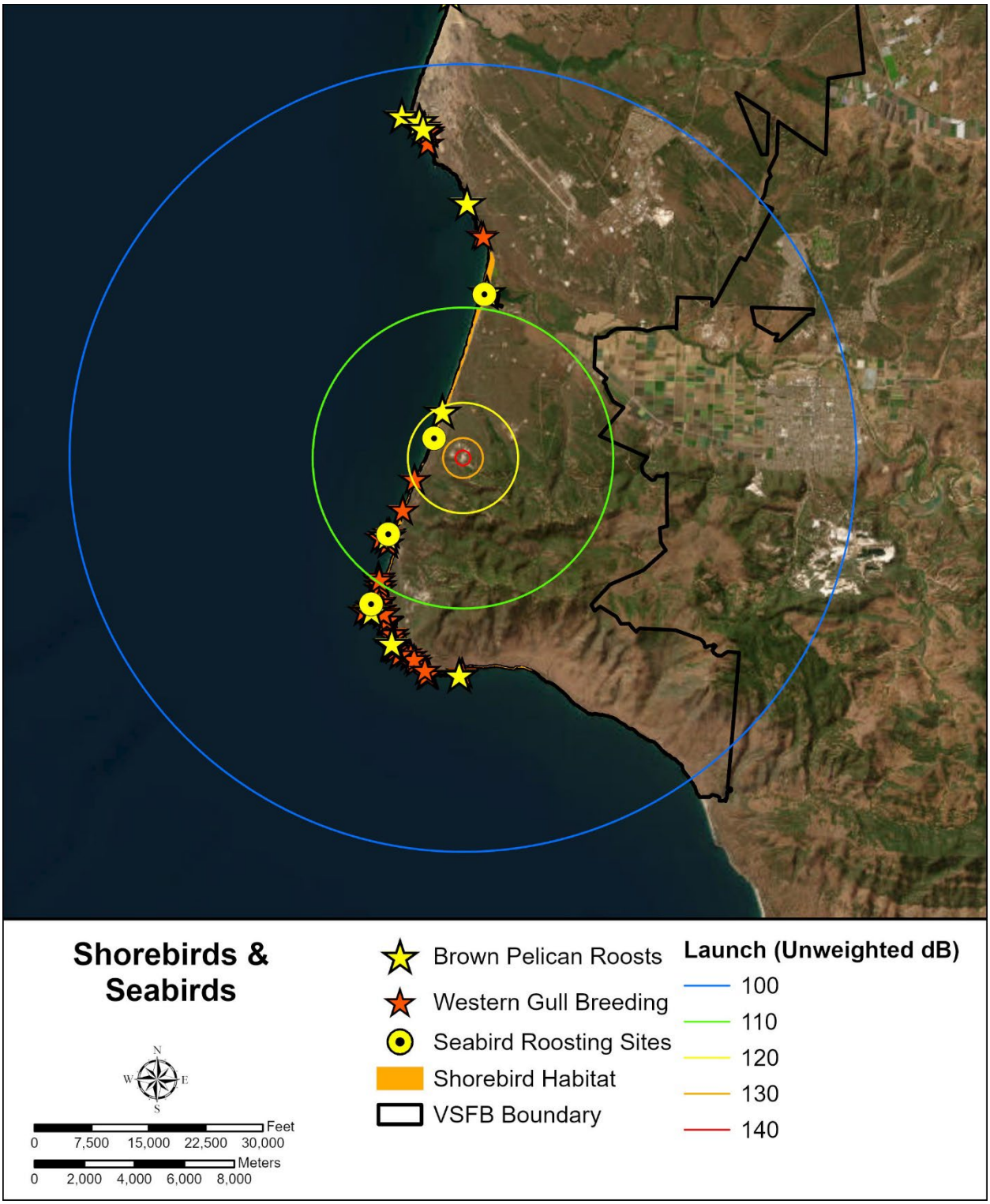


Figure B-5-3: Seabird roosting and breeding areas and shorebird habitat within the noise footprint (Source: DAF long term annual surveys and monitoring)

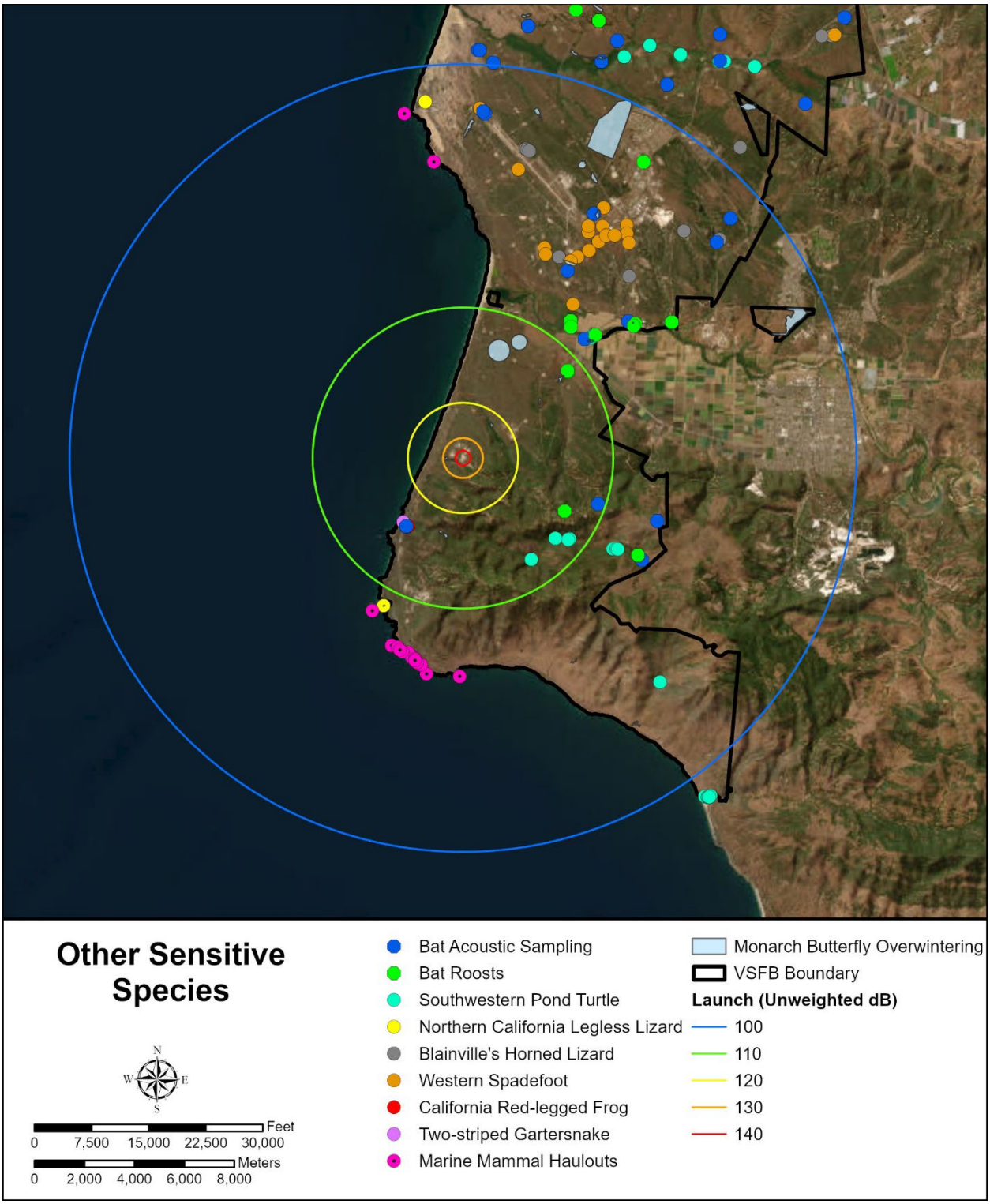


Figure B-5-4: Other special status species within the noise footprint (Source: DAF long term annual surveys and monitoring)

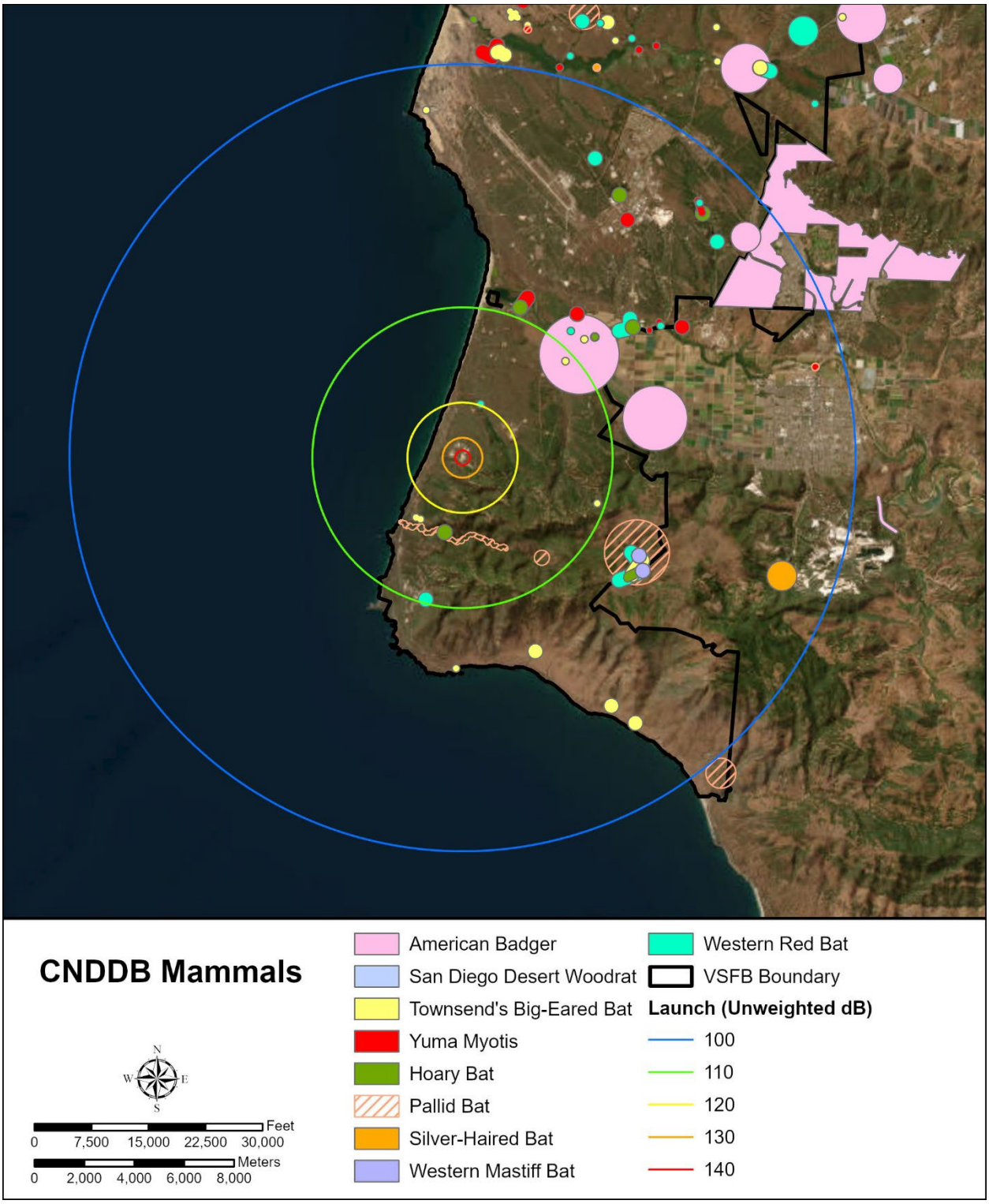


Figure B-5-5: Special status mammal CNDDB localities within the noise footprint

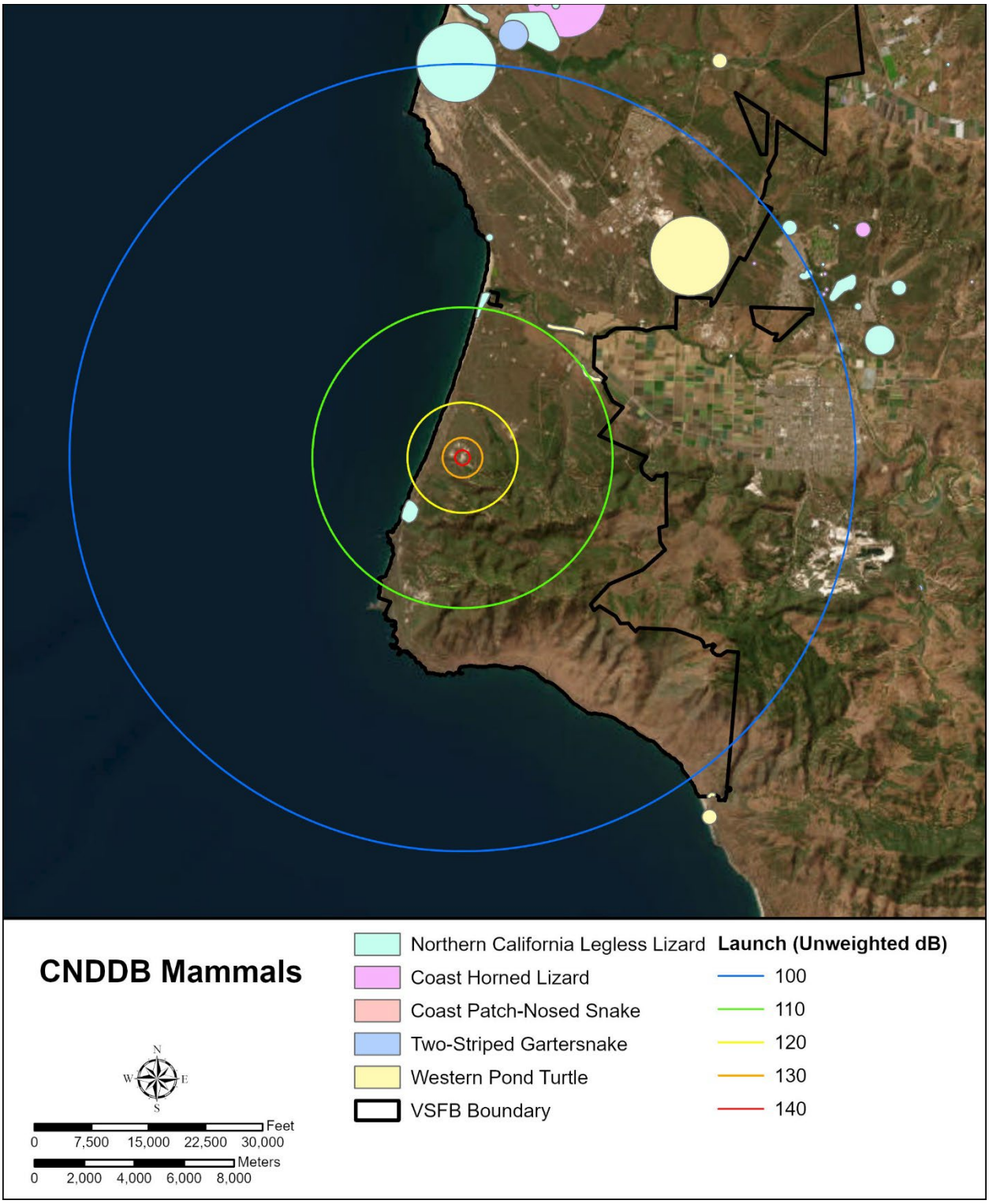


Figure B-5-6: Special status reptile CNDDB localities within the noise footprint

APPENDIX C – EVACUATION EMAIL NOTIFICATIONS

Contingency Evacuation Email: Updated Protocols

From: Santa Barbara County Parks Reservations
To: Santa Barbara County Parks Reservations
Subject: IMPORTANT INFORMATION REGARDING YOUR JALAMA BEACH RESERVATION (November 16)

Dear Valued Jalama Beach County Park Visitor,

Vandenberg Space Force Base and SpaceX has scheduled a launch for Thursday, November 16, 2023. The launch window is from 11:38 pm to 3:30 am the early morning of the 17th.

At this time **Jalama Beach is not subject to an evacuation** order due to the estimated number of overnight visitors being below the population threshold set by Space Force Launch Control, Safety Office, and the Federal Aviation Administration (FAA). **However, as the launch date/time approaches, if the estimated population threshold is exceeded, there will be a need to evacuate the campground from 3-hrs prior am/pm on November 16th until an all-clear status is issued by Space Force**.

While we **do not** anticipate the need to evacuate the campground at this time, please note the following:

- If an evacuation order is issued you will be notified in a subsequent email and all campers will be evacuated to the end of Jalama Road on to Highway 1. If you will be in mid-stay, you do not have to break down your campsite, and large camping gear may be left behind; however, we do recommend you take your valuables with you.
- While the campground is not currently subject to evacuation, if you do stay overnight in the park, please be advised while highly unlikely, there is a small risk of launch vehicle failure which could cause debris to fall on the campground.
- If you would like to move your check-in date or shorten your stay, depending on availability, please submit a reservation change form by visiting www.sbparks.org/support or contact our Call Center at (805) 568-2460. All changes will be made at no additional charge, and any shortened stays will be partially refunded.
- You may move your stay the evening of the launch to Cachuma Lake Recreation Area, depending on availability, which is approximately 50 miles from Jalama Beach. Please submit a reservation change form by visiting www.sbparks.org/support or contact our Call Center at (805) 568-2460 for availability at Cachuma Lake.
- If you would like to completely cancel the reservation, please submit a reservation change form by visiting www.sbparks.org/support or contact our Call Center (805) 568-2460. You must contact the Call Center by web form or phone to receive a full refund for your cancellation. Remember to disclose the "Jalama Safety Relocation" as the reason for your cancellation. Alternatively, please be advised that cancellations and refund requests initiated through the website will only include the site fee.

Please note that there is always a possibility that the launch may be cancelled or postponed to a later time. Backup dates are November 17th, 18th, and 19th.

We sincerely apologize for any inconvenience this may have caused, and hope this notification will

help you make any necessary adjustments to your plans. Please let us know if you have any questions or concerns regarding this launch, and thank you for camping at Jalama Beach Park.

Evacuation Email: Sent by SBC for all launches with early 2023 Protocols. Now only used if SLD 30 issues a full evacuation notice.

From: Santa Barbara County Parks Reservations
To: Santa Barbara County Parks Reservations
Subject: IMPORTANT INFORMATION REGARDING YOUR JALAMA BEACH RESERVATION (Jan 28)

Dear Valued Jalama Beach County Park Visitor,

Santa Barbara County Parks has just been notified by Vandenberg Space Force Base of a launch scheduled for **Sunday, January 29. from 5:30 AM to approximately 1:06 PM**, or until Park Staff receives an approval from the base to re-enter. All campers at Jalama Beach will be mandatorily evacuated during this window for safety reasons**.** All business should return to normal outside the relocation window and campers may return to Jalama Beach as soon as an all-clear status is received.

You are being contacted because you currently have a camping reservation that may conflict with this mandatory safety evacuation window, and we wanted to take the time to notify you of this occurrence so that you may make any changes to your travel plans accordingly. Please review the following options:

- If you are scheduled to camp on **Saturday, January 28th**, you may do so, but please be advised that you will be forced to evacuate the site **5:30 AM**. All campers will be evacuated to the end of Jalama Road on to Highway 1. If you will be in mid-stay, you do not have to break down your campsite, and large camping gear may be left behind; however, we do recommend you take your valuables with you.
- If you would like to move your check-in date or shorten your stay, depending on availability, please submit a reservation change form by visiting www.sbparks.org/support or contact our Call Center at (805) 568-2460. All changes will be made at no additional charge, and any shortened stays will be partially refunded.
- You may move your stay the evening before the launch to Cachuma Lake Recreation Area, depending on availability, which is approximately 50 miles from Jalama Beach. Please submit a reservation change form by visiting www.sbparks.org/support or contact our Call Center at (805) 568-2460 for availability at Cachuma Lake.
- If you would like to completely cancel the reservation, please submit a reservation change form by visiting www.sbparks.org/support or contact our Call Center (805) 568-2460. You must contact the Call Center by web form or phone to receive a full refund for your cancellation. Remember to disclose the "Jalama Safety Relocation" as the reason for your cancellation. Alternatively, please be advised that cancellations and refund requests initiated through the website will only include the site fee.

Please note that there is always a possibility that the event may be cancelled or postponed to a later time. The backup date is Monday, January 30th.

We sincerely apologize for any inconvenience this may have caused, and hope this notification will help you make any necessary adjustments to your plans. Please let us know if you have any questions or concerns regarding the mandatory safety relocation, and thank you for camping at Jalama Beach Park.

Santa Barbara County Parks
123 E Anapamu Street, 2nd Floor
Santa Barbara, CA 93101
Phone: (805) 568-2460
Email: Reservations@sbparks.org

Parks-County-0

Exhibit K

DEPARTMENT OF THE AIR FORCE
UNITED STATES SPACE FORCE
SPACE LAUNCH DELTA 30

June 7, 2024

Colonel Mark A. Shoemaker, USSF
Commander
Space Launch Delta 30
747 Nebraska Ave, Ste A302
Vandenberg SFB CA 93437-6261

Kate Huckelbridge, Ph.D
Executive Director
California Coastal Commission
455 Market Street, Suite 300
San Francisco, California 94105-2219

Dear Dr. Huckelbridge,

The purpose of this letter is to provide a response and supporting materials provided by my staff to the most recent California Coastal Commission (CCC) staff report in preparation for the 12 June 2024 hearing regarding the installation's pending USSF federal consistency determination (CD-0003-24).

I thank the CCC Commissioners and staff for your continued communications with the SLD 30. All CCC Commissioners and staff continue to have an open invitation for future visits to the installation so that SLD 30 may continue to support a better understanding of SLD 30's Department of Defense launch mission and our control of all commercial space activities operating on VSFB property.

If you have any questions or concerns, please contact Ms. Bea Kephart, (805) 605-7924, beatrice.kephart@spaceforce.mil.

Sincerely,

SHOEMAKER.MARK.A.1077726418

Digitally signed by SHOEMAKER.MARK.A.1077726418
DN: cn=SHOEMAKER.MARK.A.1077726418, o=U.S. Government, ou=USSF, email=unknown, c=US
Date: 2024-06-07T16:13:14-0700

MARK A. SHOEMAKER, Colonel, USSF
Commander

Attachment: SLD 30 Response to CCC Staff Report (2 pages)

ATTACHMENT

June CCC Public Hearing
SLD 30 Response to CCC Staff Report

General. It is Space Launch Delta (SLD) 30's position that the CD filed 7 March 2024 (CD-0003-24) and the proposed minimization measures SLD 30 has been willing to agree to implement since the drafting of this CD and resulting negotiations with the CCC up to the 12 April 2024 hearing, are consistent to the maximum extent practicable within the enforceable policies of the CCMP. The SLD 30 provided the required information pursuant to 15 CFR 930.39 in the CD-0003-24 and the information was and is commensurate with the expected coastal effects in the coastal zone off VSFB property. SLD 30 attended two public hearings subsequently and provided presentations and additional information to the CCC staff and to the CCC. After the SLD 30's last virtual attendance on 10 May, the CCC staff submitted additional questions on 14 May 2024. SLD 30 provided sufficient responses to the additional inquiries on 17 May 2024 and at the time all remaining staff questions had been addressed by SLD 30 in order to provide the CCC staff time to complete their report. Pursuant to 15 CFR 930.41, a state agency's determination of whether the required information is complete is not a substantive review of the adequacy of the information.

1. Sonic Booms. Sonic boom footprint was provided in the body of CD-0003-24 and the Appendix B, and levels for southern Santa Barbara, Ventura, and Los Angeles counties were provided to CCC Staff on 17 May 2024. The SLD 30 has provided the current best available information about the boom noises first reported being heard from a fraction of the launches from southern Santa Barbara County, Ventura County, and Los Angeles County starting in the March – April 2024 time frame. Reports were spread across both coastal and non-coastal zone areas. According to modeling efforts, the psf has not exceeded 2.13 psfs, putting it within the 1.0 to 5.0 psfs (128 to 140 dBs) already analyzed in the CD-0003-24, and that information has been provided. The SLD 30 will continue to monitor and assess, including reinitiation of consultation with USFWS if SLD 30 determines adverse effects of this unanticipated noise travel.

2. Marine Mammal Monitoring. Sufficient information has been previously provided under the initial National Marine Fisheries Service (NMFS) Letter of Authorization (LOA), the CD-0003-24, and recently the updated LOA as consultation continues as per these authorizations. SLD 30 has complied with, will comply with additional monitoring as may be required, and has/will provide any additional information as accomplished as per the NMFS LOAs.

3. Marine Debris. This information was provided in the ND-0009-23 previously submitted, in the CD-0003-24, as well as the associated draft EA/FONSI provided attached to the subject CD. As per the 12 April 2024 hearing, SLD 30 is open to further increasing the ratio of marine debris offsets but has not received guidance on what the CCC would deem adequate. This, as well as the agreed minimization measures, would be further coordinated during the development of the Marine Debris Plan that was included in the 12 April 2024 public hearing addenda.

4-5. ESHA. In the past, in spirit of cooperation and comity, SLD 30 has voluntarily protected such natural resources identified by the CCC on its property. However, as stated on previous

communications (SLD 30 inputs on staff report for CD-0010-22 and CD-0003-24), it is the position of the SLD 30 that ESHA policy, in particular Section 30240(a) of the Coastal Act, is not applicable to VSFB as it is outside of the coastal zone. The SLD 30 will continue to protect natural resources on its property pursuant to its land and environmental management programs mandated under applicable federal statutes and DoD policies (e.g., Endangered Species Act, Marine Mammal Protection Act, Integrated Natural Resources Management Plan (INRMP) pursuant to the Sikes Act and DODI 4715.03, Natural Resources Conservation Program, etc.) (See also, CD-0003-24, Attachment 3, USFW BO).

6. Artificial Night Lighting. SLD 30 provided in email communciation to CCC staff on 28 March 2024 that SLD 30 is preparing a lighting management plan and specific BMPs such as shielding, not having lights face the beach where practicable, outling when lights are needed for operations.

7. Commercial and Recreational Fishing. Information on this matter was provided in the CD-0003-24. At the 11 April 2024 hearing details on communciations with the fishing stakeholders would be developed in a Commerical and Recreational Fishing Coordination Plan that was included in the April Public Hearing Addenda. However, as per the current staff report the plan is no longer required.

8. Wetlands. This matter is related to activity that occurred on installation property after all regulatory compliance was completed in 2018. As communicated with CCC staff and reflected in the addenda to the April Staff Report (W13a-4-2024; page 11), SLD 30's restoration measures followed applicable Regional Water Quality Control Board (RWQCB) requirements.

DEPARTMENT OF THE AIR FORCE
REGIONAL ENVIRONMENTAL COORDINATOR, REGION 9
510 HICKAM AVENUE, BUILDING 250A
TRAVIS AFB, CA 94535

June 7, 2024

David C. Bell, Ph.D
Air Force Regional Environmental Coordinator
Region IX
510 Hickam Ave Bldg. 250, Bay A
Travis Air Force Base, CA 94535

Kate Huckelbridge, Ph.D
Executive Director
California Coastal Commission
455 Market Street, Suite 300
San Francisco, CA 94105-2219

Dear Dr. Huckelbridge,

As the Air Force (AF) Regional Environmental Coordinator (REC) in U.S. Environmental Protection Agency Region 9, I am responsible for coordinated responses to various environmental policies and regulatory matters for the Department of the Air Force (DAF), including matters related to the United States Space Force (USSF). The purpose of this letter is to provide a response to the most recent staff report in preparation for the 12 June 2024 hearing and to provide detail to the California (CA) Coastal Commission (CCC) on the Department of Air Force (DAF) position, in alignment with prior Space Launch Delta (SLD) 30 and DoD communications, regarding the federal activities at Vandenburg Space Force Base (VSFB) under the Coastal Zone Management Act (CZMA). SLD 30 has cooperated with the CCC in multiple exchanges of information and engagements to provide supporting information on the DAF position with respect to space launch activities at VSFB to assure the CCC of the DAF's commitment to address impacts associated with these activities in accordance with applicable Federal and State law. We still hope to reach a mutual resolution and obtain the CCC concurrence with the USSF federal consistency determination (CD) for Space Exploration Technologies' (SpaceX) use of Space Launch Complex 4 (SLC-4) on VSFB property regarding SpaceX's increase to 36 launches annually.

As mentioned, consistent with previous DoD and prior SLD 30 communications, (1) the DAF will undertake its federal actions in a manner consistent to the maximum extent practicable with the enforceable policies of the CZMP through the federal consistency process under the CZMA and (2) federal activities, including commercial space activities on VSFB, are not subject to the California Coastal Zone Management Program's (CZMP) Coastal Development Permit (CDP).

Launch Activities on VSFB Constitute "Federal Agency Actions"

Launches on VSFB constitute "federal agency actions" and fall within the federal CD process. The CCC staff report is inconsistent with the CZMA as it asserts that commercial space launches occurring on federal lands may necessitate the use of the CDP process where a non-federal entity (*e.g.*, Blue Origin, SpaceX, or any Government contractor) is involved in the military's federal activity on its property. Federal agency activities include "any functions performed by or on behalf of a Federal agency in the exercise of its statutory responsibilities." 15 C.F.R. § 930.31(a); *see also* 15 C.F.R. § 923.33 ("[T]he boundary of a State's coastal zone must exclude lands owned, leased, held in trust or whose use is otherwise by law subject solely to the discretion of the Federal Government"); *Manchester Pac. Gateway LLC v. Cal. Coastal Comm'n,* 2008 U.S. Dist. LEXIS 347032 (rejecting CCC's position that the CDP process should apply to a joint venture between the Department of the Navy and a private developer on federal lands).[1] Congress has authorized the DoD and DAF to take certain actions on federal property and in support of commercial launch activities. Specifically, federal statutory authorities (1) authorize military services to grant use of property it owns, (2) regulate that use and activity in conformity with such authorities and DoD and DAF policy, and (3) support the advancement of commercial space launch activity and commercial space launch entities.[2]

This position has been articulated to the CCC throughout this CD process, and both DoD REC for Region 9 and the previous commander of VSFB outlined these positions in letters to the CCC in October and November 2022, respectively. Both letters are attached for your reference.

Federal Lands are Exempted from ESHA Designations

The CZMP/CZMA does not provide authority for ESHA designations on federal lands. The CZMA explicitly excludes federally owned property from the definition of the "coastal zone." The DAF recognizes that this exclusion does not extend to CDs where activities on federal lands have reasonably foreseeable impacts that affect any land or water use or natural resource of the coastal zone off federal property. 15 C.F.R. §§ 923.33(b), 930.11(g), and 930.31(a). However, this process does not authorize the CCC to designate ESHA on federal property since ESHA designation by definition only applies to "coastal zones." To hold otherwise, would allow the CCC to indirectly regulate development of lands outside of the "coastal zone," notwithstanding previous voluntary cooperation with respect to such habitat on VSFB. As such, VSFB will be reconsidering whether to support such future requests. The DAF will continue to protect natural resources on its property pursuant to its land and environmental management programs mandated under applicable federal statutes and DoD policies (*e.g.,* Endangered Species Act, Marine Mammal Protection Act, Integrated Natural Resources

[1] Specifically, the court held that: "(1) the focus of the statute is on the federal use of federal lands, and not the use of private parties to accomplish federal objectives and (2) the Federal Government, through Congressional and agency action, acted in its sole discretion by legislative mandate and agency action to define the use of the [development] and to permit the Secretary of the Navy to jointly develop the [development] in conjunction with a private developer."

[2] *E.g.,* Title 51, United States Code (USC), Chapter 509, Commercial Space Launch Activities; Title 10, USC, Chapter 135, Space Programs; Title 10, USC, Chapter 159, Real Property and Chapter 903, Department of the Air Force, Chapter 80, Department of the Navy, Chapter 703, Department of the Army.

Management Plan (INRMP) pursuant to the Sikes Act and DODI 4715.03, *Natural Resources Conservation Program*, etc.).

We thank you for your continued communications with the military in CA, and we will continue to cooperate, consult, and coordinate with you and your staff on DoD activities through the federal consistency process pursuant to the CZMA and DoD's statutory authorities and responsibilities as designated by Congress. SLD 30 also extends an open invitation to visit the installation so that SLD 30 may continue to support a better understanding of SLD 30's controlling role over all the commercial space entities operating on VSFB property.

If you have any questions or concerns, I can be reached at david.bell.3@us.af.mil.

DAVID C. BELL, Ph.D.
AF Regional Environmental Coordinator, Region 9

Attachments:
1. Letter from Commander Navy Region SW, dated 25 October 2022
2. Letter from SLD 30/CC, dated 2 November 2022

Cc:
Cassidy Teufel, Deputy Director, CCC
Col Rebecca M. Gawaran, SSC/JA
Maj Steven McKevett, AF/JAOE-WR
Maj Charlton Hedden, AF/JAOE-FSC
Mr. Brett Downey, AF/JAOE-FSC
Mr. J.C. Golumbfskie-Jones, NRSW

Exhibit L

DEPARTMENT OF THE AIR FORCE
UNITED STATES SPACE FORCE
SPACE LAUNCH DELTA 30

6 August 2024

Beatrice L Kephart
Chief, Installation Management Flight
30 CES/CEI
1028 Iceland Ave
Vandenberg SFB CA 93437

Kate Huckelbridge, Ph.D
Executive Director
California Coastal Commission
455 Market Street, Suite 300
San Francisco, California 94105-2219

Dear Dr. Huckelbridge,

The letter serves as a revision to Vandenberg SFB CD-0003-24 to include our commitment to implement protective measures four through seven as listed in the California Coastal Commission (CCC) staff report for the 8 August 2024 hearing. The agreed upon language of measures four through seven follows:

4. **Lighting Management Plan**. A Lighting Management Plan is being completed and will be submitted to the USFWS as a requirement of the BO. DAF will provide the Commission with a copy of the approved management plan. DAF will consider comments provided by the Executive Director on the Lighting Management Plan and address them, when practicable in coordination with the USFWS. Once the BO is issued, DAF will implement the Lighting Management Plan.

5. **Coastal Access and Recreation Enhancement.** Within 30 days of the Commission's consideration of Consistency Determination No. CD-0003-24, DAF will provide, for Executive Director review and comments, an update on the Coastal Access and Recreation Enhancement efforts it is pursuing. The update will include (1) specific details and schedules for implementation of the commitments DAF has made for the evacuation shuttle, satellite internet and Highway 1 digital signage projects for Jalama Beach County Park and the Lompoc Unified School District third grade beach field trip program; (2) details of measures that SpaceX and DAF will take to ensure that the proposed launch activities will not exceed DAF's commitment to cause more than 12 annual closures of Jalama Beach; and (3) a minimum notice period, coordinated with the Santa Barbara County Parks and Recreation Department, for any planned evacuations for Jalama Beach. DAF will consider comments provided by the Executive Director in response to the update and strive to address them, when possible.

6. **Marine Debris.** DAF will ensure that annual payments by the Space Exploration Corporation (SpaceX) are made at a rate of $20 (adjusted annually for inflation) for each

pound of unrecoverable marine debris generated as a result of space launch and landing activities occurring in State waters, including the release of weather balloons in advance of launch and/or landing activities. These marine debris offset payments will be provided to the U.C. Davis Lost Fishing Gear Recovery Project (U.C Davis Program) and DAF and the Executive Director will collaborate to identify a public or non-profit organization focused on removal of hazardous waste from the marine environment or battery/electronic waste recycling and reduction efforts that can also receive funding. Once that organization is identified, future marine debris offset payments will be divided equally between it and the U.C. Davis Program. In addition, DAF will, within 30 days of the Commission's consideration of Consistency Determination No. CD-0003-24, provide an update to the Executive Director describing its recent efforts to evaluate and implement measures to reduce the amount of marine debris released as part of launch activities (and described in the CD and the 2023 EA/FONSI for 36 launches), such as by minimizing the number of weather balloons released per launch, exploring alternatives to the released weather balloons, and modifying the radiosondes. If technological and/or operational advancements in the future allow for further reductions of the use of weather balloons or marine debris associated with launches, DAF will consider further marine debris reduction efforts. DAF will also provide an annual report to the Executive Director by January 1st of each year that includes the amounts and types of marine debris released as part of each SpaceX launch and provides details about the amounts of plastics and other materials within the released debris.

7. **Commercial and Recreational Fishing Coordination Plan.** Within 30 days of the Commission's consideration of Consistency Determination No. CD-0003-24, DAF will submit a Commercial and Recreational Fishing Coordination Plan to the Executive Director for review and comments. The Plan will include the development and implementation of a communication protocol, including regular dialogue, developed in coordination with the commercial and recreational fishing industry most likely to be affected by launch and landing activities at Vandenberg Space Force Base as well as an email to local fishermen's associations that include the date and time of the surveillance area, and the vessel hazard area that is also available in the Notice to Mariners, and for how long these will be in effect. DAF shall consider comments provided by the Executive Director and strive to address them, when possible.

Thank you for your continued collaboration to finalize this CD. If you have any questions or concerns, please contact me at (805) 605-7924 or beatrice.kephart@spaceforce.mil.

Sincerely,

8/6/2024

X Beatrice L Kephart

Beatrice L Kephart

Signed by: KEPHART.BEATRICE.LINDA.1166122291

BEATRICE L KEPHART, Civ, DAF
Chief, Installation Management Flight

Exhibit M

DEPARTMENT OF THE AIR FORCE
UNITED STATES SPACE FORCE
SPACE LAUNCH DELTA 30

September 13, 2024

Colonel Mark A. Shoemaker, USSF
Commander
Space Launch Delta 30
747 Nebraska Ave, Ste A302
Vandenberg SFB CA 93437-6261

Kate Huckelbridge, PhD
Executive Director
California Coastal Commission
455 Market Street, Suite 300
San Francisco, California 94105-2219
Phone: (415) 904-5203
Email: Kate.Huckelbridge@coastal.ca.gov

Dear Dr. Huckelbridge,

This letter is in response to the California Coastal Commission's (CCC) conditional concurrence letter regarding Consistency Determination (CD), CD-0003-24, (Increase in Space Exploration Technologies Corporation's Falcon 9 launch and landing activities at VSFB to 36 and 12 per year, respectively, as well as the addition of offshore barge landing locations in the Pacific Ocean), received by the Department of the Air Force (DAF) on 15 August 2024 and to provide information discussed during associated conversations between Dr. Ravi I. Chaudhary, Assistant Secretary of the Air Force for Energy, Installations, and Environment and the Commission. The DAF recognizes the intent and importance of the Commission's feedback and looks forward to partnering collaboratively with our federal partners and the Commission to preserve California's coastal uses and resources.

The DAF appreciates the mutual coordination of the CCC's Commissioners and staff that has occurred through ongoing reciprocal communications since before the DAF's May 2023 submission of a negative determination (ND-0009-23) for the 36-Launch Increase and receipt of concurrence on ND-0009-23 through DAF's submission of CD-0003-24 in March 2024 and the Commission's August 15, 2025, written decision providing for conditional concurrence. The DAF has cooperated with the Commission by providing documents and information to address questions or concerns raised throughout the process, including participation in hearings on 15 December 2023, 11 April 2024, 10 May 2024 (informational meeting with the Commission, the public, and VSFB), and 8 August 2024. We are committed to collaboration and coordination with the CCC as demonstrated as recently as the 6 September 2024 meeting between you and Dr. Chaudhary, and we look forward to continuing our dialogue when CCC joins Dr. Chaudhary and VSFB team at the base on 17 September.

Specifically, the DAF has provided or made available the following environmental analysis documents and additional information: 2023 Draft Supplemental Environmental Assessment (SEA), Falcon 9 Cadence Increase at VSFB, California (CA) and Offshore Landing Locations; 2023 Final SEA, Falcon 9 Cadence Increase at VSFB, CA and Offshore Landing Locations; US Fish and Wildlife Service (USFWS) Biological Opinions (BOs) for the Launch, Boost-Back, and Landing activities of the Falcon 9 First Stage at Space Launch Complex 4 (SLC-4) at VSFB, Santa Barbara County, CA (2017, 2023, 2024); National Marine Fisheries Service (NMFS) Letter of Authorization (LOA) to 30th Space Wing dated 10 April 2019 and LOA to SLD 30 dated 9 April 2024; Space Launch Delta 30 (SLD 30) Response to California Coastal Commission Request for Information dated June 28 2024 (including sonic boom modeling and real time data for 2 launches' analysis of effects in Santa Barbara, Ventura, and western Los Angeles counties).

Prior to the 8 August 2024 hearing, the Commission staff and the DAF came to agreement on conditions 4 through 7 for this 36-launch cadence. At that time, the DAF and Commission staff were unable to reach mutual agreement on requested conditions 1 through 3. While considerable written and verbal communications have occurred to address the Commission's repeated or developing questions and requested conditions related to the CD, the DAF is providing you with a more detailed plan that we believe not only meets the intent of conditions 1 through 3, but also demonstrates DAF's commitment to protecting natural resources at and around VSFB and coordinating with the CCC on these efforts that will address potential adverse impacts from space launch activities from VSFB.

Condition 1. The DAF implementation plan to meet the intent of the Condition 1 is as follows.

The DAF is developing and executing monitoring management plans required for compliance with the March 2023 and August 2024 USFWS BOs and the April NMFS 2024 LOA (2024 LOA) and will provide these plans to the Executive Director and Commission staff for review and input on the draft monitoring management plans as an active stakeholder. The DAF intends to provide the Commission staff 14 calendar days of review opportunity for each plan or report. All input will be carefully considered and shared with USFWS and NMFS. The DAF will deliver to the Executive Director and Commission staff the draft reports required by USFWS annually by 31 December, and NMFS annually by 1 February, prior to the date the final reports are due to USFWS (30 January) and NMFS (1 March). The DAF will provide the Executive Director and Commission staff the final reports by 1 July annually, unless an extension is granted by USFWS or NMFS. The 2024 BO requires enhanced conservation measures and monitoring, and the DAF will also share this information in the draft reports for Executive Director and Commission staff input.

Condition 1.a.i.

The DAF will conduct ongoing marine mammal monitoring in accordance with the 2024 LOA requirements. For over 20 years (in accordance with prior NMFS LOAs), DAF conducted launch specific monitoring at haul out sites nearest to SLC-4. The significant data gathered over this time was analyzed and used to establish requirements for the 2024 LOA. In accordance with the 2024 LOA, among other launch specific requirements, DAF will conduct monitoring of population distribution to detect any population level declines or changes in distribution. Launch specific monitoring and acoustic measurements at VSFB are still required under certain conditions (e.g.

louder/larger vehicles or new locations, if sonic boom thresholds are modeled at a certain level). The DAF will conduct monitoring twice a month to monitor the abundance, distribution, and status of pinnipeds on VSFB, plus launch specific monitoring under conditions set forth in the 2024 LOA. While NMFS has scientifically determined that certain individual pinniped monitoring is no longer required under the 2024 LOA, DAF invites the Executive Director and Commission staff to provide input regarding monitoring concerns and DAF will assess the input and coordinate with NMFS. When providing its feedback, the Commission staff will provide specific concerns regarding any population of a coastal resource they believe will be adversely impacted on VSFB by launch activities beyond what is currently being addressed by the 2024 BO and 2024 LOA requirements. The scientific data in support of the concerns will be evaluated by wildlife experts, in consultation with USFWS and NMFS, to determine appropriate measures the DAF will pursue. The DAF will also provide the Executive Director and Commission staff the Air Force Research Lab (AFRL) study which records rocket launches and reentries and will result in a publicly releasable dataset when finalized, anticipated approximately October 2025.

Condition 1.a.ii.

The DAF currently monitors and collects information on many bat species, including those identified in Condition 1.a.ii, in accordance with the Sikes Act and VSFB's associated Integrated Natural Resources Management Plan (INRMP) which is coordinated not only with the USFWS but with the California Department of Fish and Wildlife (CDFW). The DAF will provide the Executive Director and Commission staff with the information.

Condition 1.a.iii.

The DAF also monitors and collects information on the monarch butterfly in accordance with the Sikes Act and VSFB's associated INRMP. The DAF will provide the Executive Director and Commission staff with the information.

Condition 1.a.iv.

The DAF will identify and analyze data for off-base reference site populations for the Western Snowy Plover (WSP) and the California Red Legged Frog (CRLF), which the USFWS has required in the 2024 BO. The DAF, in coordination with USFWS, will select 2 reference sites for monitoring the WSP and CRLF by 1 January 2025: one site to the north and one to the south of VSFB. This data will be incorporated into base-wide monitoring data and reports. If deemed appropriate and subject to necessary funding authorization, the DAF will fund off-base recovery work for the WSP and its habitat. DAF will provide draft reports generated from these projects to the Commission staff for review and input prior to any final reports due to USFWS and will provide a final report by 1 July annually. The link to the USFWS website for WSP reports throughout the range is at https://www.fws.gov/species/western-snowy-plover-charadrius-nivosus-nivos.

Condition 1.a.v.

The DAF will conduct ongoing marine mammal monitoring on the Northern Channel Islands (NCI) in accordance with the 2024 LOA requirements. As noted above in section 1.a.i., for over 20 years DA completed launch specific monitoring at haul out sites nearest to SLC-4 in accordance with prior NMFS LOAs. The information gained from an analysis of this data was used to determine necessary measures contained within the 2024 LOA. DAF will conduct monitoring in accordance with the 2024 LOA. The DAF invites the Executive Director and Commission staff to review the 2024 LOA and provide input regarding any remaining concerns. The DAF will assess input and coordinate with NMFS. Draft reports required by the 2024 LOA will also be provided to the Commission staff for review and input by 1 February annually and input will be considered by the DAF in coordination with NMFS prior to the DAF finalizing the report due to NMFS by 1 March. The DAF will provide the Executive Director and Commission staff final reports by 1 July annually.

Condition 1.a.vi.

The following actions have been taken to address equipment and data handling improvements: biological monitors have been trained to check for malfunctions in equipment; batteries have been set up with power saving measures; duplicates of images and videos are saved on separate hard drives; and higher quality batteries and larger capacity memory cards have been purchased. The entire launch window is now recorded. CA Lease Terns and WSPs have been successfully monitored since 1 March 2024 when DAF implemented these changes. DAF will continue to monitor and implement any equipment and data-handling improvements as needed.

Condition 1.b.

The DAF shall conduct analysis of monitoring data in accordance with the 2023 and 2024 BOs and 2024 LOA requirements by 1 July annually. The DAF will prepare a multivariate statistical analysis of the potential changes in species populations by 1 July annually. The DAF will fund a qualified, experienced independent third party to conduct the analysis that will provide (a) available historical population data (b) frequency of launches and on-base boost-back landings over different time scales; (c) seasonality of launches and sensitive times of year for respective species; (d) geospatial variability; (e) off-base control reference site data in accordance with USFWS requirements; (f) climatic and oceanographic patterns (g) realized levels of acoustic and lighting monitoring data in accordance with USFWS requirements; (h) and patterns of other variables (as relevant to the respective species).

Condition 1.c.

The DAF will invite the Executive Director and Commission staff to convene to review results from annual reports, after DAF has submitted annual reports to USFWS (30 January) and NMFS (1 March), by 1 July. The DAF will also include the annual monarch butterfly report by 1 July. If these results indicate significant effects found to be attributed to launch related activities, then additional monitoring, minimization and mitigation measures will be discussed and considered for implementation.

Condition 2. The DAF implementation plan to meet the intent of Condition 2 is as follows.

The DAF will provide the Executive Director/Commission staff with a Sonic Boom Assessment Plan. Based upon ongoing data collection and research of sonic boom noise from launch vehicles, an assessment plan is most appropriate. This plan will be based on data collected during different launch times, times of year, and launch azimuths in order to better characterize the phenomenon. This process will allow a data-informed approach to develop appropriate minimization without presupposing that adjusting or canceling launches is a necessary response. Further, the DAF will assess through its launch schedule review board processes which launches, if any, may be available for replanning, which may drive the need to increase the total launches to account for reductions in the number of satellites that can be included in each mission due to reduced launch vehicle performance.

The plan will require an expert's collection of real time data, assessments of the modeling, and study of related research. While implementation of a minimization plan is premature, a minimization plan could be an end state goal if/when the thorough assessment of this expert work provides science-based minimization recommendations and measures that align with national requirements and existing approaches to noise mitigation. Concurrent to this ongoing assessment, to reduce surprise and concerns from unexpected sonic boom noise, the DAF will advertise launch details with the public at least 2-12 hours prior to launch, although some launches require protection of the exact time for security purposes. As part of the assessment(s), the DAF is collecting sonic boom and noise data based on modeling data over the course of the next year. The DAF, in addition to providing ongoing Sonic Boom Assessment Report(s), will provide a summary brief to the Executive Director and Commission staff on the results of the data collection by 1 July annually. This summary brief will provide information on whether a Sonic Boom Minimization Plan would be appropriate, based upon such data and assessments.

The DAF will maintain its authority on approving trajectories based upon these reports and the Sonic Boom Assessment Plan. The DAF recognizes Commission's intent of minimizing potential adverse impacts on coastal resources from sonic boom trajectories and looks forward to collaborating on solutions that will address our shared goal of ensuring protection of coastal resources while allowing essential military missions to be accomplished. The Executive Director and Commission staff will provide the DAF with any specific concerns regarding off-base coastal resources they believe to be adversely impacted by VSFB launch activities beyond what is being assessed. The DAF will share sonic boom analysis findings throughout the year as the DAF conducts its seasonal data collection in addition to its comprehensive annual report. Any concerns will be evaluated by wildlife experts to determine what further monitoring may be required. The DAF will review the Executive Director and Commission staff input on the Sonic Boom Assessment Reports and coordinate with USFWS and NMFS. The DAF will provide the Executive Director and Commission staff the AFRL study which will record rocket launches and reentries and will result in a publicly releasable dataset when finalized, anticipated by approximately October 2025.

Condition 3. The DAF implementation plan to meet the intent of Condition 3 is as follows.

The DAF will collect sonic boom and noise data along the coast from VSFB to LA County based on modeling over the course of the next year. The DAF, in addition to providing ongoing Sonic Boom Assessment Report(s), will brief the Executive Director and Commission staff on the results of the data collection by 1 July annually. The DAF is considering sonic boom predictions when making launch decisions/approvals and will share updates on its ongoing Sonic Boom Assessment Report by 1 July annually. Again, the DAF recognizes Commission's intent of minimizing potential adverse impacts on coastal resources from sonic boom trajectories and looks forward to collaborating on solutions that will address our shared goal of ensuring the protection of coastal resources while allowing essential military missions to be accomplished. The Executive Director and Commission staff will provide specific concerns regarding off-base coastal resources they believe to be adversely impacted by VSFB launch activities beyond what is being assessed. These concerns will be evaluated by wildlife experts to determine what further monitoring may be required. The DAF will review input provided by the Executive Director/Commission staff related to the Sonic Boom Assessment Reports and coordinate with USFWS and NMFS.

The DAF continues to view its partnership with the State of California as important to meeting the nation's security objectives and looks forward to further coordination and collaboration with the Commission and its staff.

Sincerely,

SHOEMAKER.MARK.A.1077726418 Digitally signed by SHOEMAKER.MARK.A.1077726418 Date: 2024.09.13 12:01:16 -07'00'

MARK A. SHOEMAKER, Colonel, USSF
Commander

Copy to:
Mr. Cassidy Teufel, Deputy Director and Federal Consistency Coordinator, California Coastal Commission, 455 Market Street, Suite 228, San Francisco, CA 94105-2219.

Exhibit N

SHOEMAKER, MARK A Col USSF SSC SLD 30/CC

From: Teufel, Cassidy@Coastal <Cassidy.Teufel@coastal.ca.gov>
Sent: Monday, September 16, 2024 6:39 PM
To: SHOEMAKER, MARK A Col USSF SSC SLD 30/CC; Huckelbridge, Kate@Coastal
Cc: CONNER, JOHN P Col USAF SAF/IE; HATCHER, DORIAN C Col USAF SSC SLD 30/CV; KEPHART, BEATRICE L CIV USSF SSC 30 CES/CEI; YATES, LAURA E CIV USAF HAF SAF/IEIP
Subject: RE: [Non-DoD Source] RE: DAF Response Letter to CCC Conditions for CD-0003-24

Colonel Shoemaker –
Thank you again for providing this response to the Commission's August 8th conditional concurrence. In the interest of moving our discussions forward quickly, we have prepared this initial response in a number of hours and are transmitting it via email. Although we have done our best to highlight the critical issues, please also note that we may have additional points to raise following a more detailed review.

General

1. The language and intent of Condition 1 as we drafted it is for a biological monitoring program to be developed and implemented that builds off of what NMFS and USFWS have required and includes additional measures to ensure CCMP compliance. However, the approach taken by USAF in the response letter would carry out monitoring required by NMFS and USFWS only and assume those activities satisfy consistency with the CCMP . While the regulations those agencies implement (such as the Endangered Species Act and Marine Mammal Protection Act) have some overlap with CCMP enforceable policies, this overlap is not complete and the CCMP policies differ in a variety of important respects. For example, while the MMPA allows for marine mammals to be protected and managed at a population level, Policy 30230 of the CCMP requires that "special protection shall be given to areas and species of special biological or economic significance." The Commission has interpreted this to mean that special protection must be provided for areas such as marine mammal haul-outs and marine protected areas. Thus, we continue to hold the position that the most recent monitoring requirements developed to ensure ESA and MMPA compliance (i.e., 2024 USFW BO and 2024 NMFS LOA) are not sufficient to also ensure CCMP consistency. Specific suggestions to bring the program into CCMP consistency are detailed in Condition 1 and included below.
2. While the commitment to continue sonic boom acoustic monitoring and data collection is appreciated, this effort alone does not meet the language and intent of Condition 2. We suggest that the response to Condition 2 be augmented to commit to using the collected data on an ongoing basis to implement adaptive management measures that will result in reductions in sonic boom intensity and spatial extent.
3. Several statements in the response invite the Commission staff to provide specific concerns and scientific justification for coastal resource protection. We have provided this information as part of the Commission's adopted findings included with the Commission's 8/15 conditional concurrence letter. As we receive additional information through monitoring reports and other sources, we will make any needed adjustments.
4. The 9/13 response refers to implementation of some improved and enhanced biological monitoring measures established through the August 2024 BO. While these monitoring measures would improve the existing monitoring program, it is Commission staff's understanding that they would only be implemented from October through December of 2024, only three months of the indefinite period proposed for 50 launches per year in the Consistency Determination. Further, because the August 2024 BO only covers a short period in 2024, it does not consider the full range of species and life stages that would be affected by the project proposed in the CD. To resolve this, we again reiterate our request that the CD be revised to only propose an increase to 50 launches for 2024 to match our review timeline with that of the USFWS. If

that Is unacceptable, please provide clarification on DAF's implementation of the measures outlined in the 2024 BO beyond the end of 2024.

5. As currently written, the CD for 50 launches does not include a commitment to implement the various protective measures established through the Commission's review of the 36 launch CD and the Commission's conditional concurrence with it. This adds uncertainty to the implementation of those protective measures once the Commission considers the 50 launch CD. To resolve this, we request that DAF confirm, in writing, that the CD for 50 launches includes a commitment to implement the protective measures described in the Commission's conditional concurrence for 36 launches for year.
6. In its response, DAF has provided for a feedback process whereas the Commission can provide comment on monitoring components included in plans developed by NMFS and USFWS. To increase efficiency and ensure the Commission's and Commission staff's input is understood and adequately addressed, we suggest that Commission staff be included in ongoing coordination with NMFS and USFWS. It is the Commission staff's strong preference that a monitoring program be developed and implemented that can meet the needs of NMFS, USFWS and the Commission. In order to accomplish this, all agencies need to be involved in the development of the program. We therefore suggest a more integrated interagency process rather than the proposed process that limits the Commission to only a peripheral role.

Specific Recommendations for CCMP Consistency

Condition 1

7. Extend the time period for CCC staff to review the NMFS LOA and USFWS BO to at least 21 days to better facilitate meaningful review and comments.
8. Continue to conduct monitoring at haul-out sites during launches – as was required in the NMFS 2019 LOA.
9. Condition 1, subpart a(ii) and (iii) call for monitoring of bat and monarch butterfly populations on VSFB, "in a manner sufficient to assess potential changes in habitat use patterns and population levels." The 9/13 response noted that bat and monarch butterfly monitoring is occurring but does not include these monitoring programs or detailed descriptions of them. To resolve this, please share the referenced bat and monarch butterfly monitoring plans so Commission staff can evaluate them and determine if they meet the standard of being "sufficient to assess potential changes in habitat use patterns and population levels." We also suggest a feedback process be included in case the existing programs do not meet CCMP consistency objectives.
10. Condition 1, subparts (a)(iv) and (v) refer to monitoring of off-base reference sites. Please confirm that the reference sites north and south or VSFB and on the Northern Channel Islands (NCI) will be outside of the modeled affects area for engine noise and sonic booms. Please also consider providing Commission staff with an opportunity to provide feedback on the selection of reference sites to help ensure agreement that they would not be affected by the proposed launches.
11. Condition 1, subpart (a)(iv) refers to three species, California least tern, western snowy plover and red-legged frog. The 9/13 response letter proposes only to identify and analyze reference site data for two of these species, plovers and frogs. In addition, it references the requirements of the August 2024 BO, which does not appear to apply after December 2024. Please confirm that reference sites will also be established for California least terns and that the use of reference sites would persist for the full duration proposed in the 50 launch CD.
12. Condition 1, subpart (a)(v) refers to NCI monitoring carried out under the 2024 NMFS LOA. However, the 2024 LOA now would only require semi-monthly surveys at on-base haul out sites while no-such semi-monthly surveys are required at the northern Channel Islands (NCI). Also, the 2024 LOA no longer requires by-launch monitoring of on-base haul out sites and significantly raised the thresholds for initiating monitoring by launches on the NCI such that while past data may have been collected, future data collection is uncertain and data sets may not be comparable. Please revise the response to ensure that comparable monitoring activities will occur at the reference sites and areas of anticipated effects.

13. Condition 1, subpart (a)(vi). Thank you for this response and the proposed improvements to data collection and retention. Please also consider implementing further measures if additional issues arise with regards to data loss and/or equipment failures.
14. Condition 1, subpart (b): DAF's proposal appears to be generally consistent with this condition subpart. As noted above, however, the relaxing of monitoring requirements in the 2024 NMFS LOA and limited duration of the August 2024 USFWS BO means that data analysis carried out purely to satisfy the LOA and BO will not be adequate to meet the additional monitoring called for in Condition 1 of the Commission's conditional concurrence. To resolve this, please clarify that data collected per the terms of the conditional concurrence will be evaluated consistent with the elements of Condition 1, subpart (b).
15. Condition 1, subpart (c) – monitoring reports. This subpart includes a variety of specific details and elements to be included in the annual reports, as well as an interagency review of results every three years and a process for Commission review of avoidance, minimization, mitigation measures if monitoring demonstrates that adverse impacts have occurred. The 9/13 response does not address these elements of subpart (c). To resolve this, please confirm that the reporting process described in subpart (c) will be followed.

Condition 2

16. While Commission staff appreciates DAF's commitment to continue the ongoing acoustic monitoring efforts and use of data from these efforts to inform next steps, it is not clear when this plan would be provided to the Executive Director, if feedback will be accepted on it and if it is focused on areas of sensitive coastal resources or sensitive human receptors. To resolve this, please commit to a submittal date and process for consideration of feedback from Commission staff on the sonic boom assessment plan to help ensure that sensitive coastal resource sites are adequately represented.
17. The response provided to Condition 2 falls short of the language and intent of Condition 2. To resolve this, please provide (1) a description of efforts that will be taken to limit the spatial extent and severity (in terms of overpressure levels) of sonic booms caused by launches; (2) measures for evaluating modeling for specific atmospheric conditions to anticipate sonic boom effects on the Northern Channel Islands and off-base areas of the mainland coast of Santa Barbara, Ventura, and Los Angeles Counties; (3) measures for making decisions on launch time and trajectory based on an analysis to minimize the spatial extent and severity of sonic booms experienced in those off-base areas.

Condition 3

18. The response to this condition calls for Commission staff to provide specific concerns regarding off-base coastal resources that may be adversely affected by sonic booms. Please refer to the Commission's adopted findings in support of its August 8th conditional concurrence decision for this information. These adopted findings were provided with the Commission's 8/15 conditional concurrence letter.
19. The response provided to this condition also does not meet the intent or language of the condition. However, this condition is a contingency that only applies if avoidance of sonic boom effects through implementation of Condition 2 is not effective. We hope to work with DAF to ensure that implementation of Condition 2 is effective and that Condition 3 is unnecessary. However, as noted above, we believe that revisions to the response for Condition 2 are necessary. If those requested revisions will not be implemented by DAF, please carefully consider the language of Condition 3 and provide the referenced monitoring plan for Executive Director review.

Thanks again for the call this afternoon and for your consideration of this feedback. We stand ready to answer any question you may have and to discuss further.

-Cassidy

Cassidy Teufel
Deputy Director
California Coastal Commission
455 Market Street, Suite 228
San Francisco, CA 94105
http://www.coastal.ca.gov/

From: SHOEMAKER, MARK A Col USSF SSC SLD 30/CC <mark.shoemaker@spaceforce.mil>
Sent: Friday, September 13, 2024 4:18 PM
To: Teufel, Cassidy@Coastal <Cassidy.Teufel@coastal.ca.gov>; Huckelbridge, Kate@Coastal <Kate.Huckelbridge@coastal.ca.gov>
Cc: CONNER, JOHN P Col USAF SAF/IE <john.conner@us.af.mil>; HATCHER, DORIAN C Col USAF SSC SLD 30/CV <dorian.hatcher@spaceforce.mil>; KEPHART, BEATRICE L CIV USSF SSC 30 CES/CEI <beatrice.kephart@spaceforce.mil>; YATES, LAURA E CIV USAF HAF SAF/IEIP <laura.yates.1@us.af.mil>
Subject: RE: [Non-DoD Source] RE: DAF Response Letter to CCC Conditions for CD-0003-24

Cassidy - Yes, please provide feedback and we will discuss it with Dr. Chaudhary and Department of the Air Force leadership, as this product was fully coordinated with them prior to sending. We definitely want your thoughts and inputs as we collaborate on a solution.

Very Respectfully,

Mark A. Shoemaker, Col, USSF
Commander, Space Launch Delta 30
805-606-3000 (office)
805-588-8150 (cell)

From: Teufel, Cassidy@Coastal <Cassidy.Teufel@coastal.ca.gov>
Date: Friday, Sep 13, 2024 at 4:00 PM
To: SHOEMAKER, MARK A Col USSF SSC SLD 30/CC <mark.shoemaker@spaceforce.mil>, Huckelbridge, Kate@Coastal <Kate.Huckelbridge@coastal.ca.gov>
Cc: CONNER, JOHN P Col USAF SAF/IE <john.conner@us.af.mil>, HATCHER, DORIAN C Col USAF SSC SLD 30/CV <dorian.hatcher@spaceforce.mil>, KEPHART, BEATRICE L CIV USSF SSC 30 CES/CEI <beatrice.kephart@spaceforce.mil>, YATES, LAURA E CIV USAF HAF SAF/IEIP <laura.yates.1@us.af.mil>
Subject: [Non-DoD Source] RE: DAF Response Letter to CCC Conditions for CD-0003-24

Colonel Shoemaker –
Thank you very much for providing this response and for all the work that went into preparing it. Unfortunately, we feel it does not adequately meet the intent of the conditions. Please let us know if you are open to receiving feedback and taking another shot at it or if we should consider this as a final response to the conditional concurrence and proceed from there.

Thank you also for sharing Tuesday's itinerary, it looks like a good plan and I'm sure the Commissioners will appreciate seeing those locations.

Thanks again,
Cassidy

From: SHOEMAKER, MARK A Col USSF SSC SLD 30/CC <mark.shoemaker@spaceforce.mil>
Sent: Friday, September 13, 2024 12:14 PM
To: Huckelbridge, Kate@Coastal <Kate.Huckelbridge@coastal.ca.gov>; Teufel, Cassidy@Coastal <Cassidy.Teufel@coastal.ca.gov>
Cc: CONNER, JOHN P Col USAF SAF/IE <john.conner@us.af.mil>; HATCHER, DORIAN C Col USAF SSC SLD 30/CV <dorian.hatcher@spaceforce.mil>; KEPHART, BEATRICE L CIV USSF SSC 30 CES/CEI <beatrice.kephart@spaceforce.mil>; YATES, LAURA E CIV USAF HAF SAF/IEIP <laura.yates.1@us.af.mil>
Subject: DAF Response Letter to CCC Conditions for CD-0003-24

Dr. Huckelbridge / Mr. Teufel –

Please find attached the Department of the Air Force's (DAF) response to the CCC's conditional concurrence on CD-0003-24. The DAF continues to view its partnership with the State of California as important to meeting the nation's security objectives and looks forward to further coordination and collaboration with the Commission and its staff.

I have also attached the itinerary for the CCC's visit next week to Vandenberg SFB. We look forward to hosting next week's engagement with you and Dr. Chaudhary.

Very Respectfully,

Mark A. Shoemaker, Col, USSF
Commander, Space Launch Delta 30
805-606-3000 (office)
805-588-8150 (cell)

Exhibit O

CALIFORNIA COASTAL COMMISSION
455 MARKET STREET, SUITE 300
SAN FRANCISCO, CA 94105-2421
VOICE (415) 904-5200
FAX (415) 904-5400

SENT BY ELECTRONIC MAIL

September 27, 2024

Sheila McCorkle
SpaceX
VP, Starship Legal and Regulatory
1 Rocket Road
Brownsville TX 78521
Sheila.McCorkle@spacex.com

Dear Ms. McCorkle,

California Coastal Commission (Commission) staff would like to thank SpaceX for taking time to meet with us about SpaceX's Falcon 9 launch and landing activities. We also acknowledge receipt of your undated letter, sent via email on September 10, 2024, responding to the Commission's request that SpaceX apply for a Coastal Development Permit (CDP) for SpaceX's Falcon 9 launch and landing activities. Commission staff would like to take this opportunity to formally respond to SpaceX's position that its Falcon 9 launch and landing activities are a federal agency activity and that it does not need to obtain a CDP these activities.

The Commission disagrees with SpaceX's and the Department of Air Force's characterization that the launch of SpaceX rockets from a leased portion of VSFB and associated activities and development outside of VSFB are federal agency activities subject to Subpart C[1] of the Coastal Zone Management Act (CZMA) regulations. As explained in the Commission's staff report[2] for SpaceX's 36-launches and associated landings per year proposal for the June 2024 Commission hearing (June 2024 Staff Report), there is no scenario in which a federal agency contracts for a small fraction of a private business's overall business activities, in this case about 12 known launch services out of a total of 394 launches (as of May 2024) by SpaceX over the past several years, and can claim that all of the private business's activities are, by extension, federal agency activities. Therefore, as further laid out in the June 2024 Staff Report, SpaceX's rocket launch and landing activities are not federal agency activities subject to Subpart C of the CZMA regulations.

The Commission continues to take the position that its CDP authority extends to SpaceX's Falcon 9 launches and landings and associated activities and development within and

[1] https://www.ecfr.gov/current/title-15/part-930/subpart-C.
[2] w10a-6-2024-report.pdf (ca.gov).

outside of VSFB. As further explained in the June 2024 Staff Report, Supreme Court precedent[3] supports the Commission's position that it may require private parties operating on federal land to obtain a CDP for its development activities to ensure that, consistent with the California Coastal Act, the private party commences development in a manner that protects the coastal environment. The Commission has no intention of determining the basic uses of VSFB and neither the CZMA nor other existing applicable laws and regulations preempt the Commission's CDP authority over SpaceX's launch and landing activities within and outside of VSFB.

The June 2024 Staff Report further explained that SpaceX is engaging in development, as defined in section 30106[4] of the Coastal Act, including rocket launch and landing activities which change the intensity of use of land, discharge and dispose of gaseous, thermal, liquid, and solid waste and change the intensity of use of water, or of access thereto. First, rocket launch and landing activities increase the intensity of use of the land at and around SpaceX's launch facilities as well as the use of coastal waters as rocket stages are transported by barge back to VSFB. Second, the Falcon 9 launches, landings and associated activities discharge gaseous, thermal and liquid waste as well as solid waste, including through the discharge into the ocean of weather balloons and associated equipment and battery materials. Finally, SpaceX's launches change the intensity of use of water and of access to water due to evacuations and closures of public beaches and recreational sites, including Jalama Beach, a highly used day and overnight lower cost recreational facility that is part of the Santa Barbara County Park system.

Given the foregoing, the Commission requests that SpaceX submit a CDP application seeking after-the-fact and continuing authorization for its Falcon 9 launches, landings and associated activities. Additionally, the Commission requests that Space X participate, in person, at the upcoming October 10, 2024, Commission hearing on DAF's Consistency Determination for SpaceX's 50-launches per year proposal.

Sincerely,

Cassidy Teufel

Cassidy Teufel
Deputy Director, Energy, Ocean Resources, and Federal Consistency Division

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[3] *California Coastal Commission v. Granite Rock Company* (1987) 480 U.S. 572.

[4] "Development" means, on land, in or under water, the placement or erection of any solid material or structure; discharge or disposal of any dredged material or of any gaseous, liquid, solid, or thermal waste; grading, removing, dredging, mining, or extraction of any materials; change in the density or intensity of use of land, including, but not limited to, subdivision pursuant to the Subdivision Map Act (commencing with Section 66410 of the Government Code), and any other division of land, including lot splits, except where the land division is brought about in connection with the purchase of such land by a public agency for public recreational use; change in the intensity of use of water, or of access thereto; construction, reconstruction, demolition, or alteration of the size of any structure, including any facility of any private, public, or municipal utility; and the removal or harvesting of major vegetation other than for agricultural purposes, kelp harvesting, and timber operations which are in accordance with a timber harvesting plan submitted pursuant to the provisions of the Z'berg-Nejedly Forest Practice Act of 1973 (commencing with Section 4511).
As used in this section, "structure" includes, but is not limited to, any building, road, pipe, flume, conduit, siphon, aqueduct, telephone line, and electrical power transmission and distribution line.

Exhibit P

COASTAL ZONE MANAGEMENT ACT CONSISTENCY DETERMINATION FOR SpaceX Falcon Program at Vandenberg Space Force Base, California

July 2024

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ACRONYMS AND ABBREVIATIONS

ac.	acres
BCI	Bat Conservation International
BMPs	Best Management Practices
BNM	Broadcast Notice to Mariners
BO	Biological Opinion
CARB	California Air Resources Board
C.F.R.	Code of Federal Regulations
CCA	California Coastal Act
CCC	California Coastal Commission
CCMP	California Coastal Management Plan
CCSFS	Cape Canaveral Space Force Station
CD	Consistency Determination
CDFW	California Department of Fish and Wildlife
CNDDB	California Natural Diversity Database
CRLF	California red-legged frog
CTS	California tiger salamander
CZMA	Coastal Zone Management Act
DAPTF	Declining Amphibian Populations Task Force
dB	decibel(s)
dBA	A-weighted decibel(s)
DOD	Department of Defense
E	East
EPMs	Environmental Protection Measures
ESA	Endangered Species Act
FAA	Federal Aviation Administration
ft	foot or feet
Ft^2	square feet
km	kilometer(s)
KSC	Kennedy Space Center
LAA	May affect, likely to adversely affect
lbs	pounds
LC	Launch Complex
LEO	low-earth orbit
LETE	California least tern
Lmax	maximum sound level
LNM	Local Notice to Mariners
LOA	Letter of Authorization
m	meter(s)
mi	mile(s)
MMPA	Marine Mammal Protection Act
MOL	Manned Orbiting Laboratory
MSIB	Marine Safety Informational Bulletin
MSRS	ManTech SRS Technologies, Inc.
NA	Not Applicable
NCI	Northern Channel Islands
ND	Negative Determination
NE	No Effect
NL	Not Listed under the ESA
NLAA	May affect, not likely to adversely affect
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOTAM	Notices to Airmen
NOTMARs	Local Notices to Mariners
NRHP	National Register of Historic Places
NSSL	National Security Space Launch
psf	pounds per square foot
RORO	roll-on-roll-off
RWQCB	California Regional Water Quality Control Board
SBCAPCD	Santa Barbara County Air Pollution Control District
SECDEF	Secretary of Defense
SEL	sound exposure level
SLC	Space Launch Complex
SLD 30	Space Launch Delta 30
SMR	State Marine Reserve
SNPL	western snowy plover
SPCC	Spill Prevention, Contingency, and Countermeasures
SWFT	southwestern willow flycatcher
SWPT	southwestern pond turtle
TWG	tidewater goby
U.S.	United States
USACE	United States Army Corp of Engineers
U.S.C.	United States Code
USCG	U.S. Coast Guard
USFWS	U.S. Fish and Wildlife Service
USSF	United States Space Force
VSFB	Vandenberg Space Force Base

W	West

1 INTRODUCTION

Space Launch Delta 30 (SLD 30) of the Department of the Air Force (DAF), United States (U.S.) Space Force (USSF) submits this Consistency Determination (CD) for the California Coastal Commission's review. The Proposed Action would increase Space Exploration Technologies Corp. (SpaceX) Falcon 9 launch cadence at Space Launch Complex (SLC) 4 to up to 50 launches per year at SLC-4. SpaceX would maintain the currently approved 12 first stage landings per year at SLC-4.

The purpose of the Proposed Action is to provide greater mission capability to the Department of Defense (DOD), National Aeronautics and Space Administration (NASA) at the Western Range[1], as well as other government and commercial entities by increasing Falcon flight opportunities. This increase in flight opportunities would improve U.S. space capabilities by providing additional launch to support future U.S. Government and commercial missions, which require or benefit from a Falcon 9 vehicle. The Federal Aviation Administration (FAA) forecasts that commercial launch operations will increase in the United States (U.S.) from an all-time high in 2022 of 87 launches, to up to 186 launches by 2026. The DOD, NASA, and other Federal agencies obtain access to space through the procurement of commercial launch services. As such, commercial launch capability is critical to the national defense, American's national space objectives, and the National Space Policy of the United States (May 2020). The DOD issued the *Commercial Space Integration Strategy* (DOD 2024), providing a vision for prioritizing and aligning efforts to integrate commercial solutions into the U.S.'s national security space architecture. This strategy notes that integration will help deny adversaries the benefits of attacks against national security space systems and contribute to a safe, secure, stable, and sustainable space domain.

In furtherance of the National Space Policy and U.S. Government space launch requirements, this Proposed Action is needed to enable SpaceX to meet the increasing need to implement missions for the U.S. Government. SpaceX is currently one of *only* two U.S. launch service providers certified to launch national security missions for the USSF's National Security Space Launch (NSSL) program, which procures launches for all the military services as well as the intelligence community.

The USSF's mission to "secure our Nation's interests in, from, and to space" is enabled by Space Systems Command's largest organization, the Assured Access to Space Directorate. The Assured Access to Space Directorate procures launch services from the commercial space transportation industry at VSFB, one of only two Federal Ranges from which national security space launches can occur—and the only Federal Range on the West Coast. Space launch for the USSF, other DOD organizations, and the intelligence community is reliant on commercial space launch service providers, as DOD does not operate its own space launch vehicles. SpaceX supports, and is under contract for, the full spectrum of U.S. Government space mission requirements.

The Proposed Action fulfills Congress's grant of authority to the Secretary of Defense (SECDEF), pursuant to 10 United States Code (U.S.C.) § 2276(a), *Commercial Space Launch Cooperation*, that SECDEF is permitted to take action to:

> "(1) maximize the use of the capacity of the space transportation infrastructure of the [DOD] by the private sector in the U.S.;

[1] The Western and Eastern Ranges are U.S. Government managed space launch ranges on the western and eastern coasts. The Western Range includes VSFB, while the Eastern Range includes Kennedy Space Center and Cape Canaveral Space Force Station.

(2) maximize the effectiveness and efficiency of the space transportation infrastructure of the [DOD];

(3) reduce the cost of services provided by the [DOD] related to space transportation infrastructure at launch support facilities and space recovery support facilities;

(4) encourage commercial space activities by enabling investment by covered entities in the space transportation infrastructure of the [DOD]; and

(5) foster cooperation between the [DOD] and covered entities."

The Proposed Action is needed to meet current and anticipated near-term future U.S. Government launch requirements for national security, space exploration, science, and the Assured Access to Space process of the NSSL program. It is the policy of the U.S. to ensure that the U.S. has the capabilities necessary to launch and insert national security payloads into space whenever needed, as described in 10 U.S.C. § 2773. The Proposed Action is also needed so that SpaceX can continue to implement U.S. Government missions while simultaneously meeting its increasing commercial launch demands.

By increasing launch capacity at VSFB, the Proposed Action allows continued fulfillment of the 2020 National Space Policy, including promoting a "robust commercial space industry and strengthen United States leadership as the country of choice for conducting commercial space activities" (U.S. Government 2020). The Proposed Action ensures that U.S. space launch capability is not reduced or limited, and that the U.S. remains the world leader in space launch technology.

Several decades ago, the U.S. Government transitioned away from its historical approach of U.S. Government-developed and operated rockets to the use of commercial space launch vehicles, procured as a commercial service. Doing so has provided tremendous reduction in costs to U.S. taxpayers, significantly increased space launch vehicle reliability, and promoted innovative new technologies like rocket reusability. Lower launch costs are a direct value to the taxpayer and allows the DOD to field space systems more efficiently to counter increased adversary space threats and enhance U.S. space-based services to U.S. and allied warfighters. Cost benefits are realized through competitive commercial launch pricing, which is created in-part by efficient commercial launch operations. The viability and health of commercial launch services providers—enabled through a regular flight rate—is critical to the U.S. Government. This was emphasized by General Saltzman, Chief of Space Operations, and Secretary Kendall, Secretary of the Air Force, during the House of Representatives Armed Services Committee Meeting on April 17, 2024.

Through competitive acquisition of launch in the NNSL Program's Phase 2 procurement, the USSF saved $7 billion in taxpayer funds.[2] SpaceX has dramatically reduced the cost of access to space through the re-use of first stage rocket boosters and payload fairings. SpaceX is currently the only launch operator worldwide recovering, refurbishing, and reusing first-stage boosters and fairings—which means that SpaceX launch operations does not routinely expend rocket boosters or fairings into the ocean following launch. Launch system recovery and reuse has provided the U.S. Government the ability to rapidly launch and utilize new space systems architecture, such as satellite constellations in low-Earth orbit, quickly fielding new national security capability on orbit at substantially reduced cost.

[2] https://www.af.mil/News/Article-Display/Article/2305576/space-force-awards-national-security-space-launch-phase-2-launch-service-contra/

SpaceX has developed Starlink and Starshield, satellite constellations in low-Earth orbit that require numerous launches to develop and maintain the constellation. Starlink is a critical national capability that is directly utilized by DOD and the intelligence community, which contracts directly for satellite communications services important to the national defense and in support of U.S. interests abroad. Here, Starlink is a services provider for the DOD under numerous contracting vehicles, including the U.S. Space Force Commercial Satellite Communications Office, the U.S. Air Force's Global Lightning program[3], the Department of the Navy[4], and other programs designed to enhance U.S. national security capability on-orbit and on the ground. Starlink services have also been directly procured by each of the U.S. military services, and by U.S. Special Operations Command. More broadly, Starlink is under contract with the Federal Emergency Management Agency, the Department of State, Department of Veterans Affairs, Department of Transportation, U.S. Coast Guard (USCG), Customs and Border Patrol, U.S. Geological Survey, U.S. Forest Service, the National Oceanic and Atmospheric Administration (NOAA), and many other government organizations at the state and local level. These agencies include emergency management personnel who are actively using Starlink to facilitate emergency response and recovery efforts. At any given point in time, Starlink can be activated and deployed globally to respond to various crises.

Starlink and Starshield are critical national capabilities that are directly utilized by DOD and the Intelligence Community, who contract directly for satellite communications services important to the national defense, as well as in support of U.S. interests abroad, including in Ukraine. Many of these capabilities are classified and cannot be discussed in the context of this CD. For many U.S. Government users, Starlink and Starshield are indistinguishable. The ability to consistently launch both Starshield *and* Starlink is critical to maintaining the highly reliable and stable services of both constellations for the U.S. Government and U.S interests to respond to urgent matters. Starshield contracts are so sensitive that the work under them is classified. It is critical that CCC generally understand that the distinction between Starshield and Starlink does not exist for some U.S. Government users, and Starlink itself is the basis for exclusive and specialized U.S. Government services and capability.

It is in the national interest to continuously enhance Starlink network capacity, particularly in furtherance of U.S. Government purposes and objectives. SpaceX's rapid launch capability and continuous deployment of Starlink satellites on orbit directly correspond to improved network performance that scales directly with network growth to meet escalating demand. Starlink launches are not incidental; each individual Starlink launch is part of a deliberate, planned effort to meet capacity needs to support specific requirements or demand, including the U.S. Government. The capability of new satellites allows SpaceX to add capacity more quickly and interconnect the Starlink constellation, to serve critical U.S. Government needs around the globe, and to launch critical communication services for aviation and maritime in the U.S. and the rest of the world's most remote locations.

SpaceX launches payloads for the USSF's Space Development Agency as part of the Proliferated Warfighter Space Architecture, a resilient layered network of military satellites designed to quickly deliver needed national security space capabilities to the joint warfighter. These missions require several launches in rapid succession given the scale of SDA's proliferated satellite architecture. Although initial SDA missions were procured directly from SpaceX, generally SDA missions moving forward will be conducted under the auspices of the USSF NSSL. In addition to missions for the DOD, SpaceX launches payloads from VSFB for

[3] https://www.airandspaceforces.com/global-lightning-satcom-project-expanding-to-ac-130-kc-135/
[4] https://defensescoop.com/2024/04/11/starlink-terminals-navy-spacex-shipboard-c4i/

U.S. Government agencies, including NASA and NOAA, and allied foreign nations, including missions that directly benefit environmental monitoring and response.

On 5 May 2023 the Executive Director of the California Coastal Commission (CCC) concurred with a Negative Determination (ND; ND-0009-23) to increase the Falcon 9 launch cadence at SLC-4 to 36 launches per year, the number of SLC-4 first stage landings per year remained at 12, which CCC had reviewed in prior consultations. In the months following the Executive Director's concurrence, CCC staff stated that public coastal access was being adversely effected through other activities in addition to beach closures: (1) closures of the 14 mile long road between Highway 1 and Jalama Beach to incoming traffic in advance of scheduled SpaceX launches, even when a full closure and evacuation does not occur[5]; (2) email notices to those holding campground reservations during the time of a scheduled SpaceX launch; and (3) website notices to those seeking to secure a campsite reservation during the time of a scheduled SpaceX launch. The CCC stated that these launch activities prevent coastal access and recreation in greater numbers than the 12 closures at Jalama Beach, resulting in cancellations of campsite reservations and limited the number of reservations secured. Thus, the CCC advised that Jalama Beach had exceeded the number of closures analyzed in the ND. At the December 2023 public hearings, the Commissioners voted to revisit the ND and requested preparation of a CD. During preparation of the CD, SLD 30 and SpaceX coordinated with the CCC and County of Santa Barbara, to develop and implement measures to avoid and reduce future impacts of a similar nature. These measures were implemented well before the December 2023 public hearing and receipt of the Remedial Action Proposal in February 2024 and included: 1) reducing the potential for evacuations by shifting some missions to nighttime, when population levels are lower; and 2) revising the language in the potential evacuation notice emails sent to campers. Example emails from before and after these measures were implemented are included in Appendix C. Since the introduction of these measures, there was not an evacuation of Jalama Beach County Park and thus no associated closure of Jalama Road until May 2024. Additionally, seven contingency evacuation notices (out of 22 launches) have been sent to SBC resulting in email notifications to campers between mid-July 2023 and February 2024. Few campsite reservations (< 1 %) have been cancelled because of the contingency evacuation emails (pers comm L. Semenza, 2023).

1.1 AUTHORITY

This CD is being submitted by the DAF in accordance with the Federal Consistency Regulations (15 Code of Federal Regulations [C.F.R.] Part 930) pursuant to Section 307(c)(1)(A) of the Coastal Zone Management Act (CZMA; 16 U.S.C. 1456(c)(1)(A)), as amended, and the federally approved California Coastal Management Plan (CCMP) pursuant to the California Coastal Act (CCA) (California Public Resources Code, Division 20).

1.2 DETERMINATION

The project launch site (SLC-4) is located within the boundary of VSFB on land owned by the United States and under the administrative management and control of the DAF. Although the CZMA excludes federal lands from the definition of coastal zone, actions that may affect the coastal zone off federal lands are to be consistent, or it not consistent, then consistent to the maximum extent practicable with the enforceable policies of the CCMP. Launch and landing operations at SLC-4 have been developed to

[5] SLD 30 has confirmed with the County of Santa Barbara that the 14-mile-long road between Highway 1 and Jalama Beach only closes during full evacuation due to a launch or when road conditions are poor and unsafe to traverse which happens during rainy seasons that cause sink holes, downed trees and/or power lines. The road closures outside of launch times over the winter of 2022-2023 are related to weather events and unsafe conditions.

minimize and/or offset potential effects to coastal uses and/or resources to comply with the enforceable policies of the CCA. Based on review of the Proposed Action's compliance with the CZMA, the DAF has determined that the Proposed Action is consistent with the CCMP, pursuant to the requirements of the CZMA.

1.3 CONSULTATIONS WITH OTHER RESOURCE AGENCIES AND TRIBAL ENTITIES

SLD 30 reinitiated Section 7 consultation with the National Marine Fisheries Service (NMFS) on March 21, 2024 and received a Letter of Concurrence on April 17, 2024 stating the Proposed Action would not adversely affect Endangered Species Act-listed and/or proposed critical habitat. The existing SLD 30 Letter of Authorization (LOA) issued by NMFS for Level B harassment of marine mammals incidental to launch activities covers the Proposed Action. The LOA allows launch programs to unintentionally take small numbers of marine mammals during launches and landings.

SLD 30 reinitiated Section 7 consultation with the United States Fish and Wildlife Service (USFWS) on March 7, 2024.

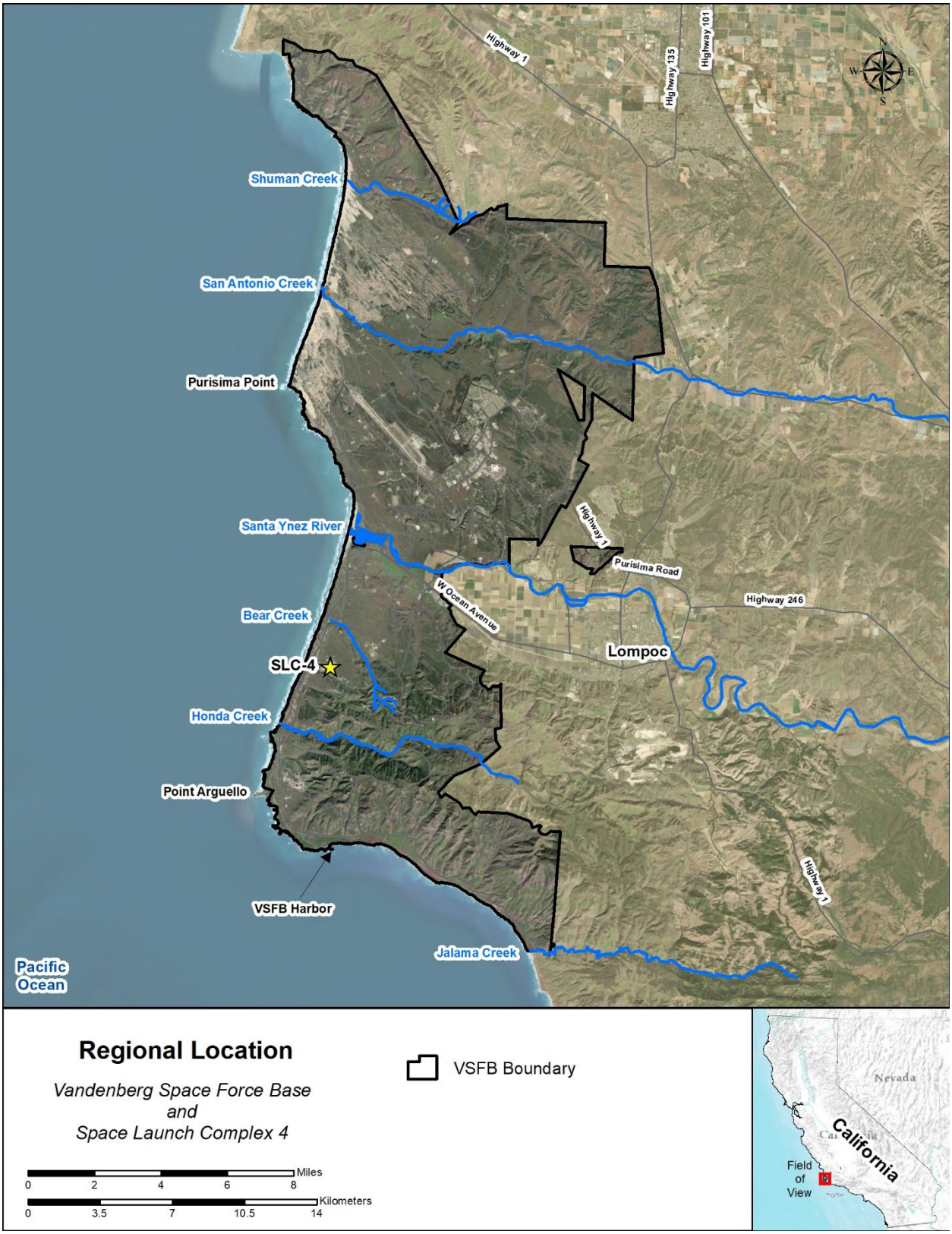

Figure 1.3-1. Regional Location of Proposed Action Area

2 DESCRIPTION OF PROPOSED ACTION

2.1 PROPOSED ACTION

The Proposed Action is to increase the annual Falcon 9 launch cadence up to 50 times per year from SLC-4. Following each launch, SpaceX would also perform a boost-back and landing of the first stage boosters up to 50 times, either downrange on a droneship or at landing zones at VSFB. As approved in prior environmental documents, no more than 12 first stage landings would occur at SLC-4 per year.

2.1.1 LAUNCH AND LANDING ACTIVITIES

One to 3 days before each launch, SpaceX may perform an engine static fire test, which lasts a few seconds. The need to conduct a static fire test depends on the mission, but there would be no more than 30 static fire events per year. Launch operations would occur day or night, at any time during the year. Following each launch, SpaceX would perform a boost-back and landing of the first stage or rocket boosters, either downrange on a droneship or at landing zones at VSFB. Mission objectives may occasionally require an expendable first stage or booster in the Pacific Ocean outside of California State waters. If expended, the first stage would break up upon atmospheric re-entry and there would be no residual propellant or explosion upon impact with the Pacific Ocean. The first stage remnants would sink to the bottom of the ocean. Fairing recovery would also occur within these recovery areas.

Launch trajectories from SLC-4 would remain within the previously analyzed azimuth range of 140 to 325 degrees. No more than 12 annual landings would occur at SLC-4, as previously analyzed.

SpaceX would land first stages and boosters either at VSFB or downrange on a droneship in the previously approved recovery areas outside of California State waters.

2.1.2 PAYLOAD FAIRING RECOVERY OPERATIONS

The Falcon 9 vehicle payload system includes a fairing that protects payloads (e.g. satellites). The fairing consists of two halves which separate, allowing the deployment of the payload at the desired orbit. Each fairing half contains a parachute system for recovery, which includes one drogue parachute and one parafoil. Parachutes, parafoils, and their assemblies are made of Kevlar and nylon, and sink quickly as they become waterlogged. The parachute system slows the descent of the fairing to enable a soft splashdown so that the fairing remains intact. The parachute canopy is approximately 110 square feet and the fairing parafoils are approximately 3,000 square feet.

SpaceX would attempt to recover both halves of the fairing after each launch. The fairing and parafoil would be recovered by a salvage ship stationed near the anticipated splashdown site, but no closer than 12 nautical miles offshore. Up to 200 parachutes and 200 parafoils would land in the ocean annually, within federal or international waters. SpaceX would attempt to recover all parafoils, but it is possible that some of the parafoils would not be recovered due to sea or weather conditions at the time of recovery. The recovery team would attempt to recover the parachute assembly if they can get a visual fix on the splashdown location. Because the parachute assembly is deployed at a high altitude, it is difficult to locate. In addition, based on the size of the assembly and the density of the material, the parachute assembly would be saturated and begin to sink. This would make recovering the parachute assembly difficult and unlikely. As a result, SpaceX has experienced limited success in recovering the parachutes but will continue to attempt recovery and improve the success rate. However, most parachutes would be deposited in the ocean.

2.1.3 VEHICLE REFURBISHMENT

SpaceX would continue to process vehicles at existing SpaceX facilities, including Building 398 and the SLC-4 hangar, on federal property. Operations include refurbishing the recovered first stage and fairing for reuse in future missions. Up to 50 boosters and 50 fairings would be refurbished each year. Solvents such as isopropyl alcohol, isopar, and Simple Green would be used during these operations, as well for launch pad operations, facility maintenance, and system flushing.

2.1.4 HARBOR OPERATIONS

SpaceX would continue to transport first stage boosters and fairings from the Port of Long Beach to the VSFB harbor via a "roll-on-roll-off" (RORO) barge. The Proposed Action would include up to 5 RORO operations per year. Each harbor operation lasts for approximately four hours, or one tide window. Harbor operations could occur at any time of day, as they are dependent on the tide windows. The Proposed Action does not include additional dredging outside the amount allowed by VSFB's existing permit from the U.S. Army Corps of Engineers (USACE).

2.2 CONSISTENCY ANALYSIS/ANALYSIS OF EFFECTS

The effects test is a process where the federal agency determines which of its proposed activities affect any coastal use or resource in the state's coastal zone (off federal property) of states with approved management programs. The CCMP is such an approved program, and the DAF will determine such effects by reviewing the CCMP's relevant enforceable policies. Effects are determined by looking at reasonably foreseeable direct and indirect effects on any such coastal zone use or resource (15 CFR 930.33). As defined in Section 304 of the CZMA, the term "coastal zone" does not include "lands the use of which is by law subject solely to the discretion of or which is held in trust by the Federal Government." However, since the proposed activities may have an effect on the land, water, or natural resource of a coastal zone off such federal property, as per DAF policy guidance (AFMAN 32-7003, Section 3.26.2), the DAF undertakes federal actions in a manner consistent, or it not consistent then consistent to the maximum extent practicable with the enforceable policies[6] of the approved CCMP through the federal consistency process under the CZMA.

The relevant enforceable polices under the CCMP are the following: Article 2 – Public Access (Section 30210, 30213, and 30214); Article 3 – Recreation (Section 30220); Article 4 – Marine Environment (Section 30230, 30231, 30232, 30234, and 30234.5). Sections and Articles of the CCMP that are not relevant to the Proposed Action are presented in Section 3.1.

Prior to evaluating whether the Proposed Action complies with the CCMP's enforceable policies, the federal agency must first examine whether the Proposed Action would have a reasonably foreseeable effect on coastal zone uses or resources. Thus, the elements of the Proposed Action must first be examined to determine whether they have reasonably foreseeable effects before determining whether those effects are consistent with the CCMP's enforceable policies. Coastal zone resources include both resources permanently located in the coastal zone (e.g., benthic organisms) and mobile resources (e.g., marine mammals and sea turtles) that typically move into and out of the coastal zone as part of a natural cycle.

[6] DAF is using the term "enforceable policies" within the meaning contemplated in 15 C.F.R. 930.36. DAF does not concede that all aspects of California's coastal program are enforceable against the federal government.

The effects test evaluates the relative location of the Proposed Action to the coastal zone and the potential effects of stressors on coastal zone uses or resources. The DAF conducted the effects test and determined there are reasonably foreseeable effects to some coastal zone uses and resources. The effects test for the Proposed Action is based on the locations of the proposed activities relative to the coastal zone and the potential effects of stressors on coastal zone resources.

The Proposed Action at VSFB could have the potential to affect coastal resources from acoustics (launch engine noise and sonic booms) and potential impacts to public use and recreation at Jalama Beach County Park as follows:

- Contingency Evacuation Email – an email sent by the County of Santa Barbara to reservation holders of campgrounds at Jalama Beach County Park notifying them of a potential upcoming evacuation. Example email attached in Appendix C. Emails are sent several days in advance of the anticipated launch date. Updates are made to the County website.
- Evacuation Email – similar process as above, though text specifies that an evacuation will occur Example email attached in Appendix C. Updates are made to the County website.
- Evacuation – Removal of day-users and campers from Jalama Beach County Park due to safety requirements. Evacuation occurs approximately four hours prior to launch and users are able to return post-launch when the all-clear is issued by SLD 30 Range Safety.
- Road Closure – The closure of Jalama Road between Jalama Beach County Park and Highway 1 occurs when an evacuation is required. Santa Barbara County Sheriffs would place roadblocks along Jalama Road to enforce an evacuation.
- Acoustics – Noise effects from launch activities on marine and terrestrial biological resources.

3 POLICIES OF THE CALIFORNIA COASTAL MANAGEMENT PROGRAM

The DAF reviewed the CCMP to identify the policies relevant to the Proposed Action according to Division 20 of the California Public Resources Code, approved as part of the coastal program. Section 3.1 identifies the CCMP policies that are not relevant to the Proposed Action. Section 3.2 provides an analysis of the CCMP policies that are relevant to the Proposed Action.

3.1 POLICIES OF THE CALIFORNIA COASTAL MANAGEMENT PROGRAM THAT ARE NOT RELEVANT TO THE PROPOSED ACTION

The CCMP policies not applicable to the Proposed Action are provided in Table 3.1-1 below.

Table 3.1-1: Policies of the CCMP That Are Not Relevant to the Proposed Action

Article	Section	State Policy	Explanation of Non-Applicability
Article 2: Public Access	30211	Development not to interfere with access	The Proposed Action does not include any construction or ground disturbance that would block the public's right of access to the sea.
	30212	New development projects	The Proposed Action does not include any new development that would block or impede public access.
	30212.5	Public facilities; distribution	The Proposed Action does not include any public facilities.
Article 3: Recreation	30221	Oceanfront land; protection for recreational use and development	The Proposed Action does not include any development of oceanfront land that would reduce available areas for public use.
	30222	Private lands; priority of development purposes	The Proposed Action does not include any development of private lands within the Action Area.
	30222.5	Oceanfront lands; aquaculture facilities; priority	The Proposed Action does not affect coastal zone lands suitable for aquaculture.
	30223	Upland areas	The Proposed Action does not affect the availability of upland areas necessary to support coastal recreational uses.
	30224	Recreational boating use; encouragement; facilities	The Proposed Action does not include the development of any recreational boating facilities.
Article 4: Marine Environment	30233	Diking, filling, or dredging; continued movement of sediment and nutrients	The Proposed Action does not include any diking, filling, or dredging activities.
	30235	Construction altering natural shoreline	The Proposed Action does not include construction or ground disturbance that would alter natural shorelines processes.

Article	Section	State Policy	Explanation of Non-Applicability
	30236	Water supply and flood control	The Proposed Action does not alter any rivers or streams.
	30237	Repealed	
Article 5: Land Resources	30241	Prime agricultural land; maintenance in agricultural production	The Proposed Action would have no impact to prime agricultural lands.
	30241.5	Agricultural lands; determination of viability of uses; economic feasibility evaluation	The Proposed Action would have no impact to agricultural lands.
	30242	Lands suitable for agricultural use; conversion	The Proposed Action would have no impact to agricultural lands.
	30243	Productivity of soils and timberlands; conversion	The Proposed Action would have no impact to timberlands.
	30244	Archaeological or paleontological resources	The Proposed Action does not include construction or ground disturbance, thus would have no impacts archaeological or paleontological resources.
Article 6: Development	30250	Development location; existing developed areas	This policy only applies to actions that require permitting, which cannot be enforced against the DAF.
	30251	Scenic and visual qualities	The Proposed Action does not include any new permanent development that would affect public scenic or visual qualities within the coastal zone.
	30252	Maintenance and enhancement of public areas	The Proposed Action does not include any new development that would require maintenance or enhanced public access to the coast.
	30253	Minimization of adverse impacts	The Proposed Action does not include any development within the coastal zone.
	30254	Public works facilities	The Proposed Action does not include any new or expanded public works facilities.
	30254.5	Terms or conditions on sewage treatment plant development; prohibition	The Proposed Action does not include the development of a sewage treatment plant.
	30255	Priority of coastal-dependent developments	The Proposed Action does not include any development within the coastal zone.
Article 7: Industrial Development	30260	Location or expansion	The Proposed Action does not include the development of coastal-dependent industrial facilities.
	30261	Tanker facilities; use and design	The Proposed Action does not include the use of existing or new tanker facilities.

Article	Section	State Policy	Explanation of Non-Applicability
	30262	Oil and gas development	The Proposed Action does not include any oil and gas development.
	30263	Refineries or petrochemical facilities	The Proposed Action does not include new or expanded refineries or petrochemical facilities.
	30264	Thermal electric generating plants	The Proposed Action does not include new or expanded thermal electric generating plants.
	30265	Legislative findings and declarations; offshore oil transport	This section explains the legislative findings applicable to offshore oil transportation, and does not constitute a separate public access policy.
	30265.5	Governor or designee; co-ordination of activities concerning offshore oil transport and refining; duties	The Proposed Action does not include activities concerning offshore oil transport and refining.
Article 8: Sea Level Rise	30270	Sea level rise	The Proposed Action does not include activities at risk of sea level rise.

3.2 POLICIES OF THE CALIFORNIA COASTAL MANAGEMENT PROGRAM THAT ARE RELEVANT TO THE PROPOSED ACTION

The CCMP policies that are relevant to the Proposed Action are policies where one or more of the Proposed Action components could affect a coastal use or resource within the coastal zone identified by the policy. The CCMP policies that are relevant to the Proposed Action are provided in Table 3.2-1.

Table 3.2-1: Policies of the CCMP That Are Relevant to the Proposed Action

Article	Section	State Policy
Article 2: Public Access	30210	Access; recreational opportunities; posting
	30213	Lower cost visitor and recreational facilities; encouragement and provision; overnight room rentals
	30214	Implementation of public access policies; legislative intent
Article 3: Recreation	30220	Protection of certain water-oriented activities
Article 4: Marine Environment	30230	Marine resources; maintenance
	30231	Biological productivity; water quality
	30232	Oil and hazardous substance spills
	30234	Commercial fishing and recreation boating facilities
	30234.5	Economic, commercial, and recreational importance of fishing
Article 5: Land Resources	30240	Environmentally sensitive habitat areas; adjacent developments

3.2.1 ARTICLE 2: PUBLIC ACCESS

Policies

CCA Section 30210 – "Access; recreational opportunities; posting" states:

> *In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.*

CCA Section 30213 – "Lower cost visitor and recreational facilities; encouragement and provision; overnight room rentals" states:

> *Lower cost visitor and recreational facilities shall be protected, encouraged, and, where feasible, provided. Developments providing public recreational opportunities are preferred. The commission shall not: (1) require that overnight room rentals be fixed at an amount certain for any privately owned and operated hotel, motel, or other similar visitor-serving facility located on either public or private lands; or (2) establish or approve any method for the identification of low or moderate income persons for the purpose of determining eligibility for overnight room rentals in any such facilities.*

CCA Section 30214 – "Implementation of public access policies; legislative intent" states

> *The public access policies of this article shall be implemented in a manner that takes into account the need to regulate the time, place, and manner of public access depending on the facts and circumstances in each case including, but not limited to, the following: (1) Topographic and geologic site characteristics. (2) The capacity of the site to sustain use and at what level of intensity. (3) The appropriateness of limiting public access to the right to pass and repass depending on such factors as the fragility of the natural resources in the area and the proximity of the access area to adjacent residential uses. (4) The need to provide for the management of access areas so as to protect the privacy of adjacent property owners and to protect the aesthetic values of the area by providing for the collection of litter. (b) It is the intent of the Legislature that the public access policies of this article be carried out in a reasonable manner that considers the equities and that balances the rights of the individual property owner with the public's constitutional right of access pursuant to Section 4 of Article X of the California Constitution. Nothing in this section or any amendment thereto shall be construed as a limitation on the rights guaranteed to the public under Section 4 of Article X of the California Constitution. (c) In carrying out the public access policies of this article, the commission and any other responsible public agency shall consider and encourage the utilization of innovative access management techniques, including, but not limited to, agreements with private organizations which would minimize management costs and encourage the use of volunteer programs.*

Consistency Review

The DAF controls access to VSFB and on-Base recreation areas. Public access to VSFB is not permitted. Personnel and approved contractors may participate in outdoor activities on VSFB, such as camping, picnicking, sunbathing, hiking, bird watching, nature photography, fishing, and hunting. The closest public access beaches are Jalama Beach County Park, Surf Beach (federal property where VSFB voluntarily allows access to the public, but is not required to do so), and County of Santa Barbara Ocean Beach Park. Of these, Jalama Beach County Park is the only one with overnight accommodations, including 107 campsites (31 of which with electrical hookups) and seven equipped cabins.

Solely for the health and safety of park visitors, the County Parks Department and the County Sheriff currently close these parks upon request from the DAF in the event of launch activities that have been determined by SLD 30 Range Safety to have certain human health and safety risks. These evacuations are

communicated at least 72 hours prior to evacuation and can be implemented a maximum of 48 hours per the agreement. Point Sal Road is not anticipated to be evacuated due to SpaceX launches.

Ocean Beach County Park and Surf Beach (Federal Property)

In the past, SLD 30 has restricted access to Ocean Beach County Park and Surf Beach for all launches from SLC-4. Based on updated modeling and safety considerations, SLD 30 Range Safety and the Security Forces Squadron have determined closures are only required if the first stage of the Falcon 9 launch vehicle will boost back to land at SLC-4. This action by DAF has resulted in a net-benefit to public access in northern Santa Barbara County by reducing the previous public access restrictions of prior launches based on past safety models and protocols. Now only a subset of launches include boost back to land at SLC-4. In addition to the parks remaining open, launch viewing opportunities attract more people to the coast thus providing coastal access to a larger number of users.

Access to the coastline from Surf Beach is available year-round. During the western snowy plover season, beach access is available from 0800-1800 and restricted during evening hours from 1800-0800. Access to the coastline from Ocean Beach County Park is available via a trail on federal property established by SLD 30 connecting this area to the coastal access available at nearby Surf Beach. Ocean Beach County Park is open from 0800 to dusk year-round. A portion of launches that boost back to land at SLC-4W would occur at night when these two locations are already closed. Accordingly, the Proposed Action would only restrict public access to Ocean Beach County Park and Surf Beach during daytime launches with boost back to SLC-4W. Surf Beach and County of Santa Barbara Ocean Beach Park would only be closed during SLC-4 landing events up to 12 times per year, for approximately four to eight hours each launch attempt.

Jalama Beach County Park

The County Parks Department and the County Sheriff may close Jalama Beach County Park for public safety for certain launch activities upon request from SLD 30 and under agreement between DAF and Santa Barbara County. Under this agreement, SLD 30 must provide notice of a launch at least 72 hours prior to the closure, and the closure is not to exceed 48 hours. SpaceX's proposed launches would comply with the closure agreement. These closures would be infrequent and would only last as long as necessary to assure the public are safe during a launch (approximately six to eight hours). The Commission has historically considered and analyzed the number of temporary evacuations to beaches in northern Santa Barbara County associated with launch activities and previously determined that a total of 12 evacuations per year at any of the beaches (Ocean Beach County Park, Surf Beach, and Jalama Beach County Park) is consistent with the public access and recreation policies of the CCMP (CD-049-98).

Impacts to coastal access and recreation at Jalama Beach County Park are dependent on risk analysis completed by SLD 30 Range Safety for each individual launch. The launch risk factors are estimated based on the probability of vehicle failure, population size in the high-risk area, day of launch weather, trajectory, and other factors. SLD 30 Range Safety considers the number of people within the Impact Limit Line; and thirty days prior to launch, conducts prelaunch debris risk assessments that determine high risk areas that contribute to the allowable risk criteria. If the risk of a Conditional Expected Casualty (CEc; a factor that estimates the risk of a multiple casualty event and assumes 100% vehicle failure) is greater than 0.01, Individual Risk is greater than 1/1,000,000, or the Expected Casualty risk is greater than 1/10,000, SLD 30 issues an evacuation requirement letter 25 days prior to launch. Generally, for launches from south VSFB, the population size in the Impact Limit Line determines the need for evacuation of Jalama Beach County Park and a CEc greater than 0.01 is typically triggered when the population exceeds

400 or more. Therefore, the number of users, including day users, campers, and staff, at Jalama Beach County Park may or may not exceed a level that triggers evacuation.

If evacuation is under consideration, SLD 30 notifies the County of Santa Barbara. The County then sends a contingency evacuation email (Appendix C) to reservation holders warning them that there may be a need to evacuate the park for the launch, providing them the opportunity to cancel the reservation. During early 2023 and before, only a full evacuation email was sent to reservation holders, this resulted in 3 to 4 reservations (typically 1 to 3, but up to 8 people maximum per site/reservation) typically being cancelled for each launch after the email announcement (L. Semenza, County of Santa Barbara, pers. comm.). In August 2023, SLD 30 and the County of Santa Barbara implemented improved messaging protocols to warn the public of potential evacuations at Jalama Beach County Park by developing a Contingency Evacuation Email (Appendix C). Santa Barbara County Parks and Recreation stated that after implementation of the new notification procedures, cancellations have become rarer, typically zero to one reservation per launch compared to 3 to 4 reservations in the past, where there are up to 8 people per reservation (L. Semenza, County of Santa Barbara, pers. comm.). The DAF and SpaceX have also minimized impacts at Jalama Beach by shifting to launches at night, discussed in more detail in the following paragraphs.

When an evacuation of Jalama Beach County Park is under consideration by SLD 30, Santa Barbara County reports the projected number of campers for the day of launch two to three days prior to the launch date. SLD 30 Range Safety compares the report to the maximum allowable number of people that would exceed the risk criteria and, if this number is exceeded, they will confirm the evacuation; if the population is less, the evacuation is rescinded. When an evacuation is confirmed, park staff request that all campers and day users leave the park. In addition, the Santa Barbara County Sheriff places roadblocks at the intersection of Highway 1 and Jalama Road to prevent the public from entering the affected area.

SpaceX flies a variety of trajectories from VSFB to support a wide range of missions, thus increasing to 50 launches per year does not mean that all 50 launches would have trajectories that impact Jalama Beach County Park. VSFB supports a unique range of trajectories, including launches to polar orbits, that are not available or practicable from CCSFS. Additionally, as launch vehicles become more reliable (e.g. a proven record of flight), impact limit lines decrease. The Commission has historically considered and analyzed the number of temporary evacuations to beaches in northern Santa Barbara County associated with launch activities and determined that a total of 12 evacuations per year is consistent with the public access and recreation policies of the CCMP. A launch attempt that could evacuate Jalama Beach County Park could be scrubbed due to weather, an issue with the vehicle, or another reason after an evacuation order has been issued. While some impacts to Jalama Beach County Park are unavoidable due to mission requirements, evacuations would not be issued for more than 12 launches, below the number of closures previously approved by the CCC (CD-049-98).

As previously stated, to reduce the potential for evacuations SpaceX has shifted launches with trajectories that would typically close the park to nighttime, when population levels are lower. Jalama Beach County Park Staff provide the number of people in the park in the hours leading up to launch, after which SLD 30 Range Safety determines if the CEc remains at or below the acceptable level. If population levels exceed acceptable risk criteria, the launch would be delayed to the following day and population levels reassessed to ensure total evacuations of Jalama Beach County Park do not exceed 12 per year. This delay process is known as scrubbing. While there is a substantial financial impact to launching at less-optimal times, the DAF will maintain these procedures when practicable to protect public access to Jalama Beach County Park. DAF and SpaceX evaluated a ‘dog leg’ trajectory to avoid impacting Jalama Beach County Park.

However, this trajectory would result in a significant performance hit to the vehicle due to the maneuver reducing the total mass able to be placed into orbit, thus requiring more launches to place the same amount of mass into orbit. Additionally, this could preclude certain missions from launching due to the mass of the payload.

DAF recognizes that potential evacuation notices can deter public access, through cancellation of scheduled reservations and/or fewer people making daily trips to Jalama Beach County Park. DAF will continue to coordinate with Santa Barbara County Parks and Recreation to better inform the public of potential evacuations.

To offset impacts to recreational access to the coast at Jalama Beach County Park due to past unaccounted for impacts and for potential impacts to future launch operations, the following measures have been or will be implemented:

- DAF, in coordination with SpaceX, has donated high-speed Starlink terminals to provide public internet coverage at Jalama Beach County Park. Cellular phone service in the area is limited, thus providing reliable internet coverage benefits emergency responders and provides overnight campers with reliable connectivity. Santa Barbara County Parks and Recreation stated that implementation of Starlink terminals at the park gate enhanced public access, as the prior online reservation system was slow and caused congestion and/or delays during the check in process at the controlled entrance as users enter the park (L. Semenza, County of Santa Barbara, pers. comm.).
- DAF, in coordination with SpaceX, is funding a variable messaging sign for use by Santa Barbara County Parks and Recreation to replace the prior sign at the intersection of Highway 1 and Jalama Road, enabling the County to inform the public if there is availability prior to driving down Jalama Road to the park. Santa Barbara County had indicated that a point of frustration for the public was not knowing whether the park or campground is full until they drove the length of Jalama Road and were forced to turn back if full. The ability for the County to utilize variable messaging reduces unnecessary vehicle trips to the park.
- DAF, in coordination with SpaceX, will provide a shuttle program to evacuate campers from the park to a safe location for missions that would result in an evacuation of Jalama Beach County Park. After launch, the shuttle(s) would bring campers back to the park.
- DAF, in coordination with SpaceX and the Lompoc Unified School District, will fund transportation for all 3rd graders in the Lompoc Unified School District to visit Surf Beach/Ocean Park on an annual basis.

Conclusion

DAF and SpaceX would continue to implement the following minimization measures for the launch increases previously discussed to reduce potential evacuations of Jalama Beach County Park:

- To reduce the potential for evacuation, SpaceX shifted launches with trajectories that would typically close the Jalama Beach County Park to nighttime, when population levels are lower. Jalama Beach County Park Staff provide the number of people in the park in the hours leading up to launch, after which SLD 30 Range Safety determines if the population level remains at or below the acceptable level for flight safety.
- If population levels at Jalama Beach exceed acceptable thresholds for flight safety during launches scheduled during hours of darkness and the number of evacuations previously deemed consistent by the CCC, the launch would be scrubbed (i.e. delayed) rather than require evacuation.

- SLD 30 and Santa Barbara County would continue to utilize improved messaging protocols to warn the public of potential evacuations at Jalama Beach County Park.

Through the implementation of offsets discussed above, the Proposed Action would not substantially diminish the protected activities, features, or attributes of Jalama Beach County Park. A summary of these offset measures would be included in DAF's annual report to the CCC. Similarly, the Proposed Action would not substantially diminish the protected activities, features, or attributes of Ocean Beach County Park and Surf Beach. The Proposed Action may draw additional people to these areas to view launches. The Proposed Action would be fully consistent with Sections 30210, 30213, and 30214 of the CCA.

3.2.2 ARTICLE 3: RECREATION

Policies

CCA Section 30220 – "Protection of certain water-oriented activities" states:

> *Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.*

Consistency Review

Water-oriented recreational activities occur offshore of VSFB; however, effects on offshore activities are unlikely other than temporary avoidance areas established during launch activities. Temporary avoidance areas for security and safety would not limit public access to adjacent areas. Areas would only be closed for the duration of the launch activity as required by SLD30 Range Safety. The USCG would issue a Notices to Mariners (NOTMAR) that defines public avoidance area for launch events. The avoidance area would be lifted as soon as the USCG determines it is safe to do so. Temporary closures of these areas for security and safety do not limit public access to or use of adjacent areas. Areas would be closed for the duration of the activity and reopened at the completion of the activity. A more detailed discussion of NOTMARs and maritime closures is included in Section 3.2.5.

Due to the short-term duration of the activities (50 total launches), broadcasting of NOTMARs, and the expansive offshore area that would still be available to the public, accessibility impacts associated with water-oriented recreational activities would remain negligible. Therefore, the Proposed Action would be fully consistent with Section 30220 of the CCA.

3.2.3 ARTICLE 4: MARINE ENVIRONMENT (MARINE RESOURCES)

Policies

CCA Section 30230 – "Marine resources; maintenance" states:

> *Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.*

CCA Section 30231 – "Biological productivity; water quality" states (in part):

> *The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means ...*

Consistency Review

As shown in Table 3.2-2, there are five species that occur in the marine environment off the VSFB coastline. One is federally listed as threatened under the Endangered Species Act (ESA) and four species are protected as defined under the Marine Mammal Protection Act (MMPA). The DAF determined these species may be potentially affected by the Proposed Action from noise effects during operation.

Table 3.2-2. Determination of Potential Effects to Marine Mammals

Species	Status	ESA Effects Determination	MMPA Determination
Southern sea otter (*Enhydra lutris nereis*)	FT	NLAA	NE
Steller sea lion - Eastern U.S. Stock (*Eumetopias jubatus*)	MMPA	NA	Level B
Northern elephant seal – California Breeding Stock (*Mirounga angustirostris*)	MMPA	NA	Level B
Pacific harbor seal – California Stock (*Phoca vitulina richardii*)	MMPA	NA	Level B
California sea lion – U.S. Stock (*Zalophus californianus*)	MMPA	NA	Level B

Notes: FE = Federally Endangered Species; FT = Federally Threatened Species; MMPA = Marine Mammal Protection Act, NA = not applicable; NE = no effect; NLAA = May affect, not likely to adversely affect; ESA = Endangered Species Act, MMPA = Marine Mammal Protection Act

In addition, there are up to 5 sea turtle species, 7 mysticetes (baleen whales), and 22 odontocetes (toothed cetaceans) that may be found within the region of influence. Sea turtles and cetaceans spend their entire lives in the water and spend most of their time (>90% for most species) entirely submerged below the surface. Additionally, when at the surface, sea turtle and cetacean bodies are almost entirely below the water's surface, with only the blowhole or head exposed for breathing. This minimizes exposure to in-air noise, both natural and anthropogenic, essentially 100% of the time because their ears are nearly always below the water's surface. As a result, in-air noise caused by sonic boom and engine noise would not affect sea turtle or cetacean species. Therefore, they were not considered further in the Environmental Assessment and are not considered further in this CD.

Southern Sea Otter (*Enhydra lutris nereis*)

Direct Effects. No ground disturbing activities or vegetation management activities would occur within southern sea otter habitat; therefore, these actions will have no effect on the southern sea otter.

Noise and Visual Effects. Areas directly offshore of SLC-4 would receive visual disturbance and noise levels of less than 130 unweighted decibels (dB) maximum sound level (Lmax) during up to 50 Falcon 9 launches from SLC-4 per year and approximately 110 dB Lmax during up to 12 first stage landing at SLC-4W. During static fire events, noise directly off the coast of SLC-4 would be less than 125 dB Lmax and there would be no associated visual disturbance. Landing at SLC-4W would also generate a sonic boom directly offshore that is expected to range from 1 to 5 pounds per square foot (psf). Otters are only occasionally observed along the coast between Purisima Point and Point Arguello transiting through the area between suitable habitat to the north and south. Beginning at the Boat Dock and continuing south along Sudden Flats, the inshore habitat supports expansive kelp beds and a relatively high density of otters. Noise levels would

reach between 100 and 110 dB Lmax during up to 50 Falcon 9 launches from SLC-4 per year and less than 80 dB Lmax during up to 12 first stage landing each year at SLC-4W in these areas. Sonic booms during up to 12 SLC-4W landings per year would range from 1 to 3 psf along Sudden Flats.

Exceptionally little sound is transmitted between the air-water interface; thus, in-air sound would not have a significant effect on submerged animals (Godin 2008). In addition, according to Ghoul & Reichmuth (2014), "Under water, hearing sensitivity [of sea otters] was significantly reduced when compared to sea lions and other pinniped species, demonstrating that sea otter hearing is primarily adapted to receive airborne sounds." This study suggested that sea otters are less efficient than other marine carnivores at extracting noise from ambient noise (Ghoul & Reichmuth 2014). Therefore, the potential impact of underwater noise caused by in-air sound would be insignificant and discountable even with the launch increases from 36 to 50.

Extensive launch monitoring has been conducted for sea otters on both north and south VSFB, with pre- and post-launch counts and observations conducted at rafting sites immediately south of Purisima Point for numerous Delta II launches from SLC-2 and one Taurus launch from Launch Facility-576E and at the rafting sites near Sudden Flats for two Delta IV launches from SLC-6. Monitoring has also been conducted for Falcon 9 launch operations from SLC-4 with no abnormal behavior, mortality, or injury of effects on the population has ever been documented for sea otter because of launch-related disturbance. Otters were monitored during four Falcon 9 launches from SLC-4 during 2023 and there were no discernible effects on overall southern sea otter numbers at the monitoring site.

The lack of any demonstrated effects from launches on populations off the coast of Sudden Ranch is likely because there is little overlap in the hearing sensitivity of otters (primarily 2 to 22 kHz) and launch engine noise, which is primarily below 250 Hz, with moderate energy to 2 kHz range, and little energy above 2 kHz. While a 2-psf sonic boom is approximately equivalent to 135 dB Lmax, most of that acoustic energy from the sonic boom is not heard by sea otters. Most of the acoustic energy in a sonic boom is less than 250 Hz, well below the region of best sensitivity of the sea otter (2–22.6 kHz). While the sea otter would likely hear the sonic boom, it would only be responding to acoustic energy that is above 250 Hz and perceived sound levels would be much less than 135 dB Lmax. Additionally, if disturbed, otters typically dive under the water and therefore minimize potential noise exposure anyway. Landing engine noise follows launch by approximately 5 to 7 minutes and typically occurs slightly before the sonic boom effects land. Therefore, any individuals that flee into water as a result of launch disturbance would reduce their likelihood of being exposed to the landing engine noise and sonic boom due to the attenuation of sound in water. As a result, there would not be an opportunity for chronic noise exposure in otters.

Finally, otters have also been shown to quickly acclimate to disturbances from boats, people, and harassment devices (air horns). Davis et al. (1988) conducted a study of northern sea otter's reactions to various underwater and in-air acoustic stimuli. The purpose of the study was to identify a means to move sea otters away from a location in the event of an oil spill. Anthropogenic sound sources used in this behavioral response study included truck air horns and an acoustic harassment device (10 to 20 kHz at 190 dB Lmax) designed to keep dolphins and pinnipeds from being caught in fishing nets. The authors found that the sea otters often remained undisturbed and quickly became tolerant of the various sounds. When a fleeing response occurred as a result of the harassing sound, sea otters generally moved only a short distance (328 to 656 ft) before resuming normal activity (Davis et al. 1988).

Curland (1997) also found that southern sea otter may acclimate to disturbance. The author compared otter behavior in areas with and without human-related disturbance (e.g., kayaks, boats, divers, planes,

sonic booms, and military testing at Fort Ord) near Monterey, California. Otters spent more time traveling in areas with disturbance compared to those without disturbance; however, there was no significant differences in the amount of time spent resting, foraging, grooming, and interacting, suggesting that the otters were becoming acclimated to regular disturbances from a variety of sources (Curland 1997). Extensive launch monitoring of sea otters on VSFB has shown that disturbance from rockets is not a primary driver of sea otter behavior or use of the habitat along Sudden Flats and has not had any apparent long-term consequences on populations, potentially indicating that this population has acclimated to launch activities. Therefore, any effects as a result of noise (launch, landing, and sonic boom) or visual disturbance are expected to be limited to minor behavioral disruption and insignificant.

Conclusion. Observations at VSFB have shown no abnormal behavior, mortality, or injury of otters during launch activities and noise studies have shown southern sea otters adapt to sound exposure. As a result, the Proposed Action would have an insignificant effect on southern sea otter. Therefore, VSFB has determined that the Proposed Action may affect, but is not likely to adversely affect, the southern sea otter.

Marine Mammals Protected under the MMPA

Under the MMPA, NMFS issued a Final Rule for taking marine mammals incidental to VSFB launches (NMFS 2024a), and a LOA (NMFS 2024b). The LOA allows launch programs to unintentionally take small numbers of marine mammals during launches. The Proposed Action would not result in exceedance of take thresholds as identified in the 2024 LOA. The DAF is required to comply with the LOA listed conditions and address NMFS concerns regarding marine mammals at VSFB. Under the current LOA, semi-monthly surveys (two surveys per month) must be conducted to monitor the abundance, distribution, and status of pinnipeds at VSFB. In addition, marine mammal monitoring and acoustic measurements must be conducted at the Northern Channel Islands (NCI) if the sonic boom model indicates that pressures from a boom will reach or exceed 7 psf from 1 January through 28 February, 5 psf from 1 March through 31. July, or 7 psf from 1 August through 30 September. No monitoring is required on NCI from 1 October through 31 December.

Direct Effects. No ground disturbing activities or vegetation management activities would occur within the habitat of marine mammals; therefore, these actions would not exceed Level B harassment to marine mammals, as authorized by NMFS, including during harbor operations.

Noise Effects. Noise and visual disturbance can cause variable levels of disturbance to pinnipeds that may be hauled out within the areas of exposure, depending on the species exposed and the level of the noise levels. NMFS has previously determined that the only potential stressors associated with the specified activities that could cause harassment of marine mammals (i.e., rocket engine noise, sonic booms) only have the potential to result in harassment of marine mammals that are hauled out of the water (NMFS 2024a). As a result, not all Falcon 9 first stage recoveries are expected to result in harassment of marine mammals. First stage recoveries throughout the majority of the proposed landing area will not result in landing engine noise or sonic booms greater than 1.0 psf impacting mainland or islands. Sonic booms greater than 1.0 psf would occasionally impact the NCI and pinniped haulouts in southeastern Santa Barbara and Ventura Counties. The DAF has monitored pinnipeds during launch-related sonic booms on the NCI during numerous launches over the past two decades and determined that there are generally no significant behavioral disruptions caused to pinnipeds by sonic booms less than 1.0 psf. Pinniped monitoring on VSFB during numerous launches over the past two decade has also found that generally only a portion of the pinnipeds present tend to react to rocket engine noise and sonic booms. Reactions

between species are different. For instance, Pacific harbor seals and California sea lions tend to be more sensitive to disturbance and may react by entering the water while northern elephant seals raise their head or have no reaction. Normal behavior and numbers of hauled out pinnipeds typically return to pre-launch levels within 24 hours or less (often within minutes) after a launch event. The DAF has monitored pinnipeds on VSFB and the NCI during many launches to characterize the effects of noise and visual disturbance on pinnipeds over the past two decades and determined there are generally no substantial behavioral disruptions or anything more than temporary affects to the number of pinnipeds hauled out on VSFB and the NCI. Any impacts to Pacific harbor seals hauled out in eastern Santa Barbara and Ventura Counties are expected to be similar to what has been observed on VSFB and NCI – harbor seals would likely respond to sonic booms by entering the water but returning to normal behavior relatively quickly. Monitoring has not found additional or new effects on marine mammals as launch cadence at VSFB has increased and no observations of injury or mortality to pinnipeds during monitoring have been attributed to past launches.

MMPA-protected marine mammals have the potential to be disturbed during RORO barge operations. However, adverse effects are not anticipated because Environmental Protection Measures (EPMs), including entering the harbor to the extent possible at high tides when pinnipeds are not present, limiting, and restricting nighttime activities and using artificial lighting, and slowly starting any noisy activities, would help minimize and avoid any behavior disruptions.

Given the authorizations and EPMs in place (as described in Appendix A, Section A.3, Marine Biological Resources), including the required monitoring, the Proposed Action would result in insignificant effects on MMPA protected pinnipeds.

Consistency Review Conclusion

The DAF and USFWS initiated formal consultation for potential impacts resulting from the Proposed Action that may affect but are not likely to adversely affect the southern sea otter. The DAF will comply with the terms and conditions of the Biological Opinion (BO) for the 36, and the BO for the 50 when finalized. NMFS issued a new LOA to SLD 30 in April 2024 to allow Level B Harassment (behavioral disruption) of pinnipeds. The DAF will comply with the conditions of the LOA and will implement the necessary monitoring and mitigation activities to protect marine mammal species.

The DAF has determined that the Proposed Action would not result in population-level effects on any marine resources and biological productivity of coastal waters would be maintained for long-term commercial, recreational, scientific, and educational purposes. Therefore, the Proposed Action would be fully consistent with Sections 30230 and 30231 of the CCA.

3.2.4 ARTICLE 4: MARINE ENVIRONMENT (WATER QUALITY)

Policies

CCA Section 30231 – "Biological productivity; water quality" states (in part):

> *… minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.*

CCA Section 30232 – "Oil and hazardous substance spills" states:

> *Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur.*

Consistency Review

Wetlands

The Proposed Action does not involve construction or ground disturbance, therefore there would no impacts to wetlands in the coastal zone.

Surface Water

Activities during operations would include using hazardous materials and generating wastewater that if not properly controlled and managed could result in an adverse impact to water resources. However, EMPs would continue to be implemented to properly manage materials, and to reduce or eliminate project-associated runoff, which reduces the potential for adverse effects (see Appendix A). Commercial space companies are independently responsible for compliance to provisions of the Clean Water Act and its requirements for development of site-specific Spill Prevention, Contingency, and Countermeasures (SPCC) plan under 40 C.F.R. 112. Inspection and enforcement of each SPCC and any permitted tanks are delegated to the Santa Barbara County Certified Unified Programs Agency. The SPCC requirements for commercial space companies do not fall under the jurisdiction of SLD 30. SpaceX maintains and operates under an SPCC with Santa Barbara County CUPA. Under 40 C.F.R. 112, the SPCC includes elements that the Commission considers critical for these plans, including: an oil spill risk and worst-case scenario spill assessment, response capability analysis of the equipment, personnel, and strategies (both on-site and under contract) capable of responding to a worst-case spill, including alternative response technologies, oil spill preparedness training and drills, and evidence of financial responsibility demonstrating capability to pay for costs and damages from a worst-case spill. SpaceX's secondary containment is sized to capture all materials contained within any tanks present and the SPCC includes the necessary specifications on the spill response supplies needed at the site during operations.

Launch activities at SLC-4 would create exhaust clouds (plumes); however, Falcon does not use solid fuels, which have the potential to result in toxic plumes. Wastewater discharges would continue to follow the conditions of the Regional Water Quality Control Board (RWQCB) letter for Enrollment in the General Waiver of Waste Discharge Requirements for SLC-4E Process Water Discharges to eliminate potential adverse effects to water quality. Any water that remains after launches or stormwater that accumulates within the trench would be tested for contamination. If contamination is encountered, the contents would be pumped out and disposed of per the waiver/permit and state and Federal regulations. If the water is clean enough to go to grade, it would be discharged from the retention basin via a spray field. Currently, the water can be discharged to grade via the spray field approximately 90-95% of the time. It would then percolate into the groundwater system and flow down gradient. Therefore, impacts to surface water from launch operations under the Proposed Action would not be significant.

At maximum cadence, the Proposed Action would use up to 20.07 acre-feet of water per year. This would represent approximately 0.7 percent of the total annual water usage on VSFB; which would be negligible and not result in any measurable impacts to flow rates, hydration periods, or water levels in San Antonio Creek. Therefore, effects on surface water in San Antonio Creeks under the Proposed Action would not

be significant. Therefore, effects to surface water from launch operations under the Proposed Action would be insignificant.

Ground Water

The Proposed Action does not involve construction or ground disturbance. At a maximum cadence of 50 launches per year, including static fires and landings, the Proposed Action, including water to support personnel and operational activities, would use up to 20.07 acre-feet of water per year.

Wastewater discharges that may occur during project activities, including accumulated stormwater and non-stormwater discharges, would continue to be managed IAW the RWQCB letter for Enrollment in the General Waiver of Waste Discharge Requirements for SLC-4E Process Water Discharges. After a launch, approximately 9,000 gallons of deluge water per Falcon 9 launch would remain in the existing retention basin after evaporation. Samples of the deluge water would be collected and analyzed. If the water is clean enough to discharge to grade, it would be discharged from the retention basin via the spray field as described in prior Environmental Assessments. It would then percolate into the groundwater system and flow down gradient into Spring Canyon. With adherence to federal, State, and local laws and regulations, impacts on groundwater would be less than significant.

Marine Debris

It is SpaceX's goal to land and recover all first-stage boosters for reuse. However, due to mission requirements (e.g., missions that require all available propellant due to heavier payloads or higher energy orbits), on rare occasions boosters may be unable to complete a boost-back burn and landing and would be expended in the broad open ocean well outside of State jurisdictional waters. When a first stage booster is intentionally expended, the first stage is expected to break up upon atmospheric reentry, and any residual fuel is dispersed and evaporated such that there's none left when the vehicle debris hits the ocean. Upon impact with the ocean's surface, the inert vehicle debris is expected to sink, like the fate of traditional non-reusable first stage boosters. However, these boosters would not have the potential to affect coastal water resources because they are made of inert materials that would not impact water quality, and they would be expended well outside of the coastal zone. SpaceX has not conducted an expendable booster mission from SLC-4E since 2018.

SpaceX attempts to recover potential debris where practicable. However, due to weather conditions, sea state, or other factors, a recovery attempt may be unsuccessful. SpaceX successfully completed all landing attempts in 2023, all attempted fairing recoveries (180 fairing halves) in both the Pacific and Atlantic Oceans and recovered approximately 75 percent of parafoils in the Pacific Ocean. Fairings, parachutes, and parafoils would land well outside of State jurisdictional and U.S. territorial waters but could land within the U.S. Exclusive Economic Zone. The fairings, parachutes/parafoils and their assemblies are all inert.

If a parachute or parafoil is not recovered, it would sink to the seafloor within a matter of hours. The degradation of parachute and parafoil materials would be a slow process that takes place after the materials have settled on the seafloor. It is possible that small fragments could temporarily resuspend in the water column, but the potential for this depends on local ocean floor conditions and the fragments are not expected to resuspend high in the water column where they would likely be encountered by ESA-listed species. Recovery operations typically take place far offshore (e.g. 300-500 NM) and any drogue parachutes or parafoils not recovered are expected to settle (> 3,000 m [9,800 ft]). Given the rapid rate parachutes and parafoils sink to the floor, the potential for adverse effects due to entanglement is low.

Weather balloons are 100% biodegradable and would split into pieces and quickly sink, along with the plastic radiosonde potentially within State jurisdictional waters. Both the weather balloon and radiosonde are inert. The final landing location of the weather balloon and radiosonde is dependent on wind conditions at the time of release, thus not every weather balloon released will land in the ocean.

As weather ballons rise, their volume increases to a point where the elastic limit is reached and the balloon bursts. The temperature at this altitude range can reach negative 40 degrees Fahrenheit and even colder. Under these conditions of extreme elongation and low temperature, the balloon undergoes "brittle fracture" where the resultant pieces of rubber are small strands comparable to the size of a quarter (Burchette 1989). This was confirmed by researchers at the University of Colorado and NOAA (University of Colorado and NOAA 2017). The small shreds then make their way back to the surface of the Earth and are expected to land in the ocean. Along the way, the pieces can be subject to movements in atmospheric pressure and wind as they sink through the air. This can cause the fragments to become scattered and disperse before landing on the surface of the ocean where they are subject to movement of surface currents, which can cause additional dispersion.

The balloon fragments would be positively buoyant, float on the surface, and begin to photo-oxidize due to UV light exposure. Studies have shown latex in water will degrade, losing tensile strength and integrity, though this process can require multiple months of exposure time (Pegram and Andrady 1989; Andrady 1990; Irwin 2012). Field tests conducted by Burchette (1989) showed latex rubber balloons are very degradable in the environment under a broad range of exposure conditions, including exposure to sunlight and weathering and exposure to water. The balloon samples showed significant degradation after six weeks of exposure (Burchette 1989).

The floating latex balloon fragments would provide substrate for algae and eventually be weighed down with growth of heavier epifauna, such as tunicates (Foley 1990). The degree to which such colonization may occur will correspond to the amount of time the balloon remains at or near the ocean's surface. Additionally, an area's geographic latitude (and corresponding climatic conditions) has a marked effect on the degree of biofouling on marine debris. Fouling of the latex shreds could be confused with organic matter while ESA-listed species are foraging. Green sea turtles are herbivorous and a large study of green sea turtles that stranded in Texas between 1987 and 2019, discovered 48% had ingested plastic, although there was no evidence of mortality related to the ingestion of the plastics (Choi et al. 2021). A study of latex balloon fragment ingestion by freshwater turtles and catfish found no significant impact on survival or blood measured indicators of stress response (Irwin 2012).

In addition to further degradation of the latex material, the embedded fouling organisms would cause the material to become negatively buoyant, making it slowly sink to the ocean floor. Studies in temperate waters have shown that fouling can result in positively buoyant materials (e.g., plastics) becoming neutrally buoyant, sinking below the surface into the water column after only several weeks of exposure (Ye and Andrady 1991; Lobelle and Cunliffe 2011), or descending farther to rest on the seafloor (Thompson et al. 2004).

SpaceX's recovery efforts have reduced marine debris by approximately 74,804 lbs per launch. If SpaceX's 2023 payload manifest for missions originating from SLC-4E was launched using expendable boosters and fairings, as all other launch providers currently operate, approximately 2,094,400 lbs of debris would have been deposited in the broad open water of the Pacific Ocean. For 2022 missions originating from VSFB, SpaceX achieved a 54 percent recovery rate for parafoils and recovered three drogue parachutes. SpaceX improved upon the parafoil recovery rate in 2023, recovering approximately 77 percent of all parafoils.

These recovery efforts have reduced marine debris by approximately 99.8 percent compared to a traditional launch provider. The continued recovery of the vast majority of the first stage and fairings offsets the rare occurrence that an ocean landing would occur.

To offset any effects from marine debris within State jurisdictional waters, SpaceX participates in the SLD 30 Adopt-A-Beach Program, which conducts quarterly beach cleanups at Surf Beach. SpaceX also makes an annual contribution to the California Lost Fishing Gear Recovery Project to offset the impacts from unrecoverable debris within State jurisdictional waters. Under nominal conditions, the first stage, fairing halves, parachutes, and parafoils impact the ocean well outside of State or Federal jurisdictional waters. For every pound of unrecovered debris landing in State jurisdictional waters, SpaceX would make a compensatory donation of $20.00 in a lump sum payment in the first quarter of the following year. This mitigation approach was agreed upon through coordination with NMFS in 2016 during consultation for potential impacts to Essential Fish Habitat from marine debris and was determined based on the USACE mitigation ratio checklist, as recommended by NMFS and in coordination with the University of California, Davis, which manages the California Lost Fishing Gear Recovery Project (SpaceX 2016). The mitigation ratio previously agreed upon with NMFS was $7.50 for every three pounds of debris; however, DAF has increased this ratio to further offset any potential impacts. SpaceX would provide annual reports on recovery efforts to DAF.

Water Supply

VSFB has two sources of drinking water; during normal operating conditions, the primary source comes from the State Water Project and the secondary source comes from four groundwater wells located on VSFB property. The VSFB wells are typically only used to augment State Water supplies and become the primary source during emergency repair or annual maintenance shutdowns on the State Water Project system. Over the past twenty years there have been several persistent drought periods affecting State Water Project supplies and VSFB has had to rely on its groundwater wells for extended periods to meet supply demands. At maximum cadence, the Proposed Action would use up to 20.07 acre-feet of water per year. This would represent approximately 0.7 percent of the total annual water usage on VSFB; which would be negligible and not result in any measurable impacts to the water supply or San Antonio Creek Groundwater Basin. The Proposed Action is within the normal fluctuation and water demand of VSFB. The Proposed Action's water usage would result in no effect to sensitive coastal resources in San Antonio Creek.

Conclusion

The Proposed Action avoids effects of interfering with surface water flow and would have insignificant effects on the quality of coastal waters, streams, wetlands, or estuaries. Therefore, the Proposed Action is fully consistent with Sections 30231 and 30232 of the CCA.

3.2.5 ARTICLE 4: MARINE ENVIRONMENT (COMMERCIAL AND RECREATIONAL FISHING)

Policies

CCA Section 30234 – "Commercial fishing and recreational boating facilities" states:

> *Facilities serving the commercial fishing and recreational boating industries shall be protected and, where feasible, upgraded. Existing commercial fishing and recreational boating harbor space shall not be reduced unless the demand for those facilities no longer exists or adequate substitute space has been provided. Proposed recreational boating facilities shall, where feasible, be*

designed and located in such a fashion as not to interfere with the needs of the commercial fishing industry.

CCA Section 30234.5 – "Economic, commercial and recreational importance of fishing" states:

The economic, commercial, and recreational importance of fishing activities shall be recognized and protected.

Consistency Review

Southern California's west coast is a leading recreational and commercial fishing area. SpaceX launches missions from VSFB with a launch azimuth between 140 and 325 degrees, supporting a wide range of U.S. Government missions. The maritime hazard area follows the path of the trajectory and is approximately 21 miles wide at its widest for Falcon 9 (Figure 3.2-1 and Figure 3.2-2). The maritime hazard area for any given mission would include up to approximately 16 to 20 California Commercial Fisheries Blocks as defined by the California Department of Fish and Wildlife. Southerly and northernly trajectories would cover more blocks than westerly trajectories, as the vehicle's trajectory is over state waters for longer. These launch azimuths also include multiple State Marine Reserves, which currently prohibit or significantly limit fishing. These are generally clustered around VSFB and the NCI.

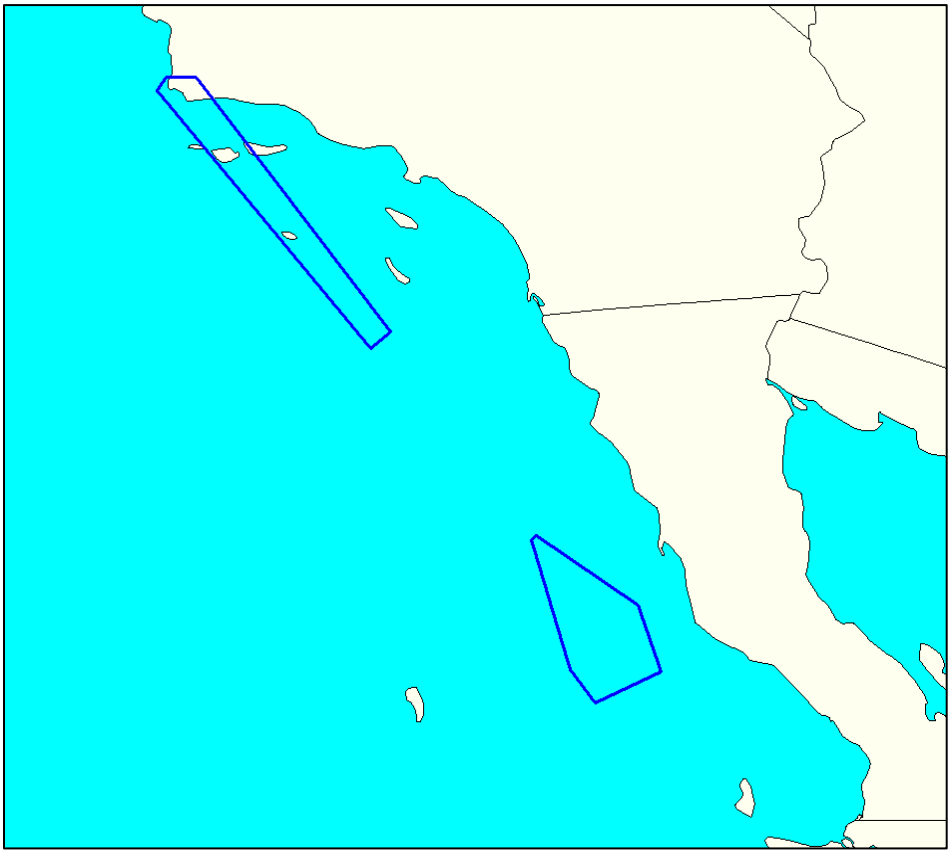

Figure 3.2-1. Example vehicle maritime hazard area (blue) for Falcon 9 launches. Note the maritime surveillance area is not shown because it does not extend off of land.

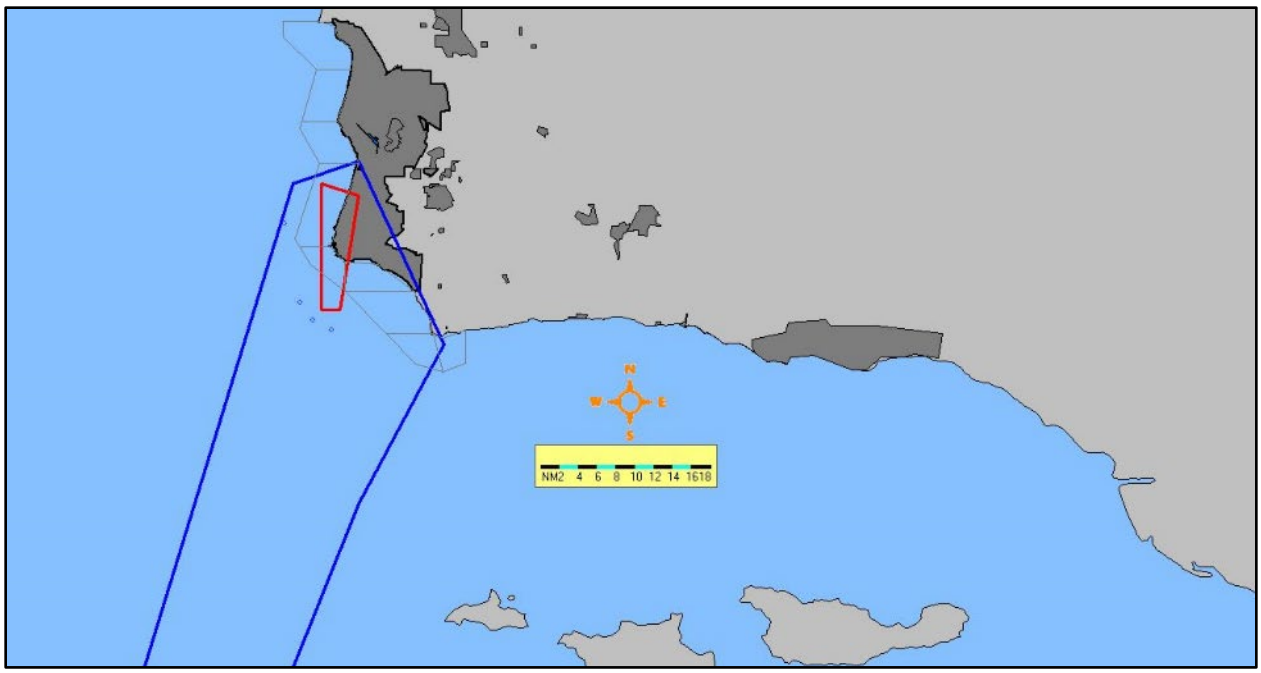

Figure 3.2-2. Example vehicle maritime hazard area (blue) and maritime surveillance area (red) for Falcon 9 launches

Fishing in these blocks varies and is largely conducted by vessels from the Santa Barbara Harbor, Port San Luis, and Morro Bay Harbor. Fishing in the blocks potentially affected by SpaceX VSFB launches is limited compared to other areas but is valuable for select species. The range of potential launch azimuths primarily overlays low producing fishing blocks and does not affect the high producing blocks that are further east around the Channel Islands (Figure 3.2-3). In 2023, the blocks overlaid by the range of SpaceX's potential azimuths landed a total of 10,949,361 pounds (lbs) worth $18,037,773, which is 9.9% of California's total landings, or 11.2% of the value of the state's total landings (Table 3.2-3; CDFW 2023).

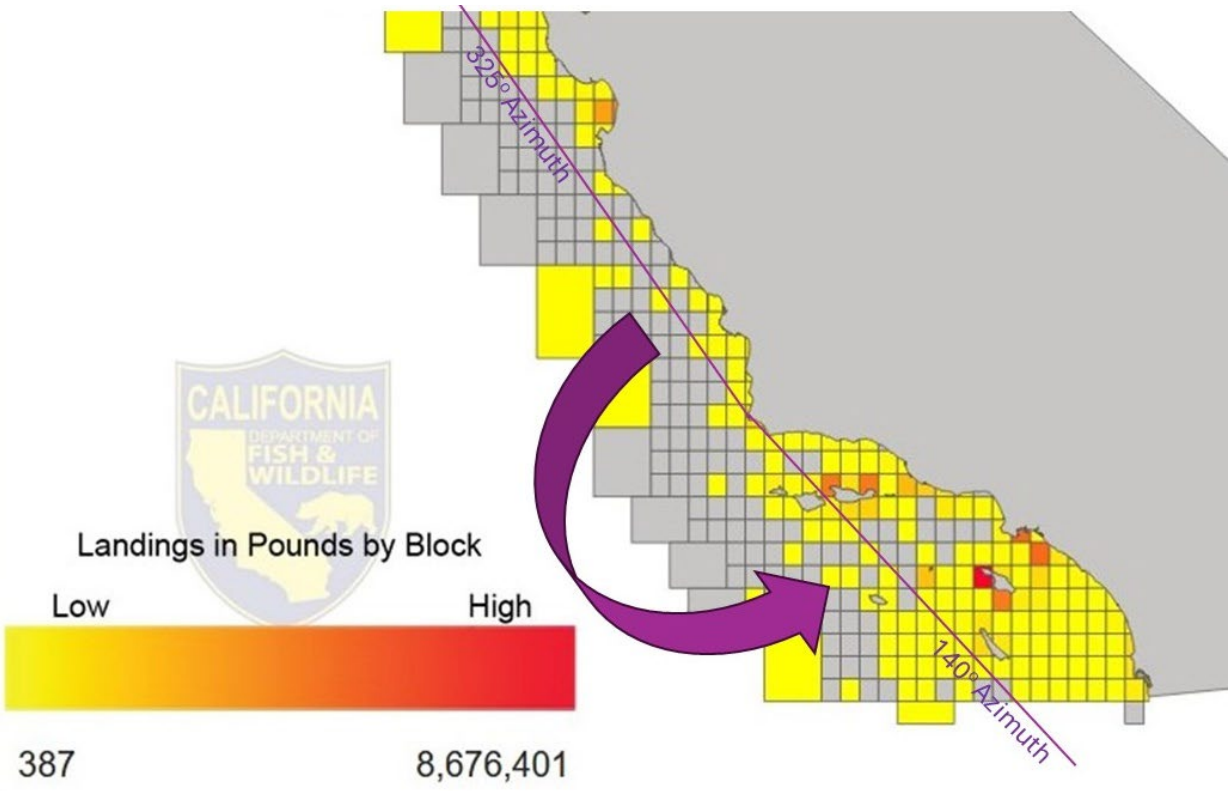

Figure 3.2-3. Productivity of fishing blocks in 2023 potentially affected by SpaceX launches

Table 3.2-3. Productivity of fishing blocks by species management group

Species Management Group	Pounds	Value	% of Selected Blocks		% of State Total	
			lbs	$	lbs	$
Coastal Pelagic Species (CPS)	7,946,236	$ 4,289,677.00	72.6%	23.8%	12.3%	13.2%
Groundfish	857,498	$ 2,480,089.00	7.8%	13.7%	6.1%	14.9%
Highly Migratory Species (HMS)	232,784	$ 1,325,434.00	2.1%	7.3%	8.7%	14.5%
Marine State Managed Fish	396,281	$ 792,260.00	3.6%	4.4%	12.4%	9.6%
Marine State Managed Invertebrates	1,478,625	$ 8,938,281.00	13.5%	49.6%	5.6%	9.5%
Nearshore Fishery Management Plan Species	37,937	$ 212,032.00	0.3%	1.2%	29.0%	28.4%
Total	**10,949,361**	**$18,037,773**				

The public's safety during launch operations is of upmost importance to SLD 30, FAA, USCG, and SpaceX, which includes the protection of maritime users near the launch vehicle's flight trajectory. Comprehensive safety measures, governed by federal regulations, are put into place for every launch to identify, communicate, and monitor areas that are at risk. Launch operations are conducted in a manner that is biased towards public safety and vessels that ignore hazard warnings near the launch trajectory may delay or cancel a launch if they present unacceptable public risk. While considerable formal planning and regulatory communications are accomplished during this process, successful implementation is dependent upon the good faith and collaboration of all maritime users.

The USCG supports launches from federal ranges by notifying the public of the maritime hazard upon request by the range authority or by the launch operator if a Letter of Intent has been signed by both parties. The USCG is not obligated to provide assets during commercial launch activities and maintains the discretion to determine how to employ its resources and manage maritime risks within their jurisdiction. The USCG issues various types of NOTMARs; including Local Notice to Mariners (LNM), Broadcast Notice to Mariners (BNM), and Marine Safety Informational Bulletin (MSIB), all of which include the predicted time and location of the hazard. These are notifications of potential hazardous operations and do not explicitly prohibit vessels from entering the identified areas. In determining the appropriate NOTMAR for the planned hazard areas, USCG District 11 reviews the risk assessments performed by SLD 30 for the launch or reentry activity and impacted commercial and recreational vessels on the high seas off the California Coast.

To ensure public safety, such warnings are issued for a window of time that includes the nominal launch duration plus the expected debris fall time in the event of a failure. The timing, duration, and direction of the launch is highly dependent upon the mission's requirements for accessing space. Akin to the ocean tides often dictating the best times for fishing, the earth's rotation and orbital mechanics dictate when and what direction to launch. For example, when needing to rendezvous with another spacecraft, the length of available times to launch can be as short as instantaneous and inflexible to move. Similarly, launch opportunities may only be available every few days or may only be available for a few weeks every

so many years, which often is the case in launching to other planets or space objects. Alternatively, populating satellite constellations and launching prototype satellites are typically more flexible and may result in longer and adjustable times. Even with the most flexible orbital requirements, the length of the time window for launch, as well as the number of consecutive launch attempts, must be constrained to properly fit into other maritime operations as well as with the FAA-managed national airspace system and the efficient operations and movement across VSFB. In addition to mission requirements, launch days/times are adjusted to reduce range scheduling conflicts with SLD 30, national airspace impacts with FAA, radio frequency conflicts with U.S. Government users, and maritime impacts with USCG and U.S. Navy.

FAA regulations require the public to be notified of all maritime hazard areas for each launch. If the risk, as calculated by SLD 30, within a portion of the maritime hazard area exceeds a threshold determined by the FAA, access to this smaller area, known as the "surveillance area" may be restricted in order for launch to be allowed to proceed. Due to Falcon's reliability, SpaceX's surveillance areas for launches from VSFB have insignificant effects on maritime activities. For many missions, this closure area does not even leave land. Accordingly, only a small subset of fishing blocks within the vicinity of VSFB have the potential to be closed by each launch and for a relatively short period of time. The area within the hazard area, but not closed to vessel traffic, is approximately two blocks wide along each given trajectory. The size and shape of this area is described in the published NOTMAR and is specific to the mission and timing. As previously stated, this corridor is approximately 21 miles wide at its widest to a point where the risk is below safety thresholds. The size varies based on several factors including the launch flight trajectory and simulations of variations of the trajectory, expected seasonal winds, launch vehicle reliability, launch vehicle break-up modeling in case of an anomaly, anticipated vessel traffic, population data near the launch site, and other factors.

As noted above, since the NOTMARs are notices for unpatrolled hazard areas and not hard closures, vessels that enter the hazard area pose a safety risk for the launch. When an incursion of the NOTMAR occurs, SLD 30 or USCG personnel may contact the vessel and request confirmation of the number of passengers on-board, if the vessel cannot be contacted, a conservative estimate is assumed. SLD 30 range safety personnel then use this value to update risk safety calculations in real-time verify the safety requirements are not exceeded. For small vessels with only a few people, such as most recreational and commercial fishing vessels, the risk calculations often are not violated, and the launch may proceed. However, an increase in vessel traffic in the vehicle hazard area and/or a vessel (even a small one) close to the trajectory may violate the safety criteria and cause the launch to be delayed or cancelled. SpaceX has both delayed and cancelled launch attempts in order to protect the safety of vessels that did not heed the warning in the NOTMAR and proceeded to enter the hazard area. A launch delay or cancellation adds significant operations costs to a launch, including rescheduling of range assets and staffing, perishable launch commodities (e.g., liquid oxygen, nitrogen gas, helium gas), mission delay costs, and potential customer penalties. DAF and SpaceX are therefore highly motivated to work with other maritime users to avoid conflicts that could cause inadvertent delays.

Communication beyond the NOTMAR is key to successfully minimize and avoid impacts to recreational and commercial fishing stakeholders. DAF, in coordination with SpaceX, has established a communication protocol with maritime stakeholders in the region and maintains regular dialogue with a variety of commercial and recreational fishing stakeholders, including the Port San Luis Commercial Fishermen's Association and similar fisherman associations, fish buyers and processors, harbor masters, and sport fishing companies. The chairmen of local fisherman's associations are provided an email that includes the

date and time of upcoming mission surveillance areas, and the vessel hazard areas that are also available in the NOTMARs, and for how long these will be in effect. Collaborative pre-planning and deeper understanding of the NOTMAR warning areas allows mariners to understand how small adjustments in their plans, such as adjusting port departure times or fishing areas, will meet their landing goals while also respecting DAF's responsibility for public safety in the maritime environment. Orbital mechanics and other competing demands, such as FAA commercial air traffic adjustments, may not fully satisfy fishermen requests. In these cases, additional coordination prior to and on launch day helps balance needs, including updated launch safety calculations and real-time radio communications. Therefore, effects on recreational and commercial fishing would be insignificant. The Proposed Action is fully consistent with Sections 30234 and 30234.5 of the CCA.

3.2.6 ARTICLE 5: LAND RESOURCES

Policies

CCA Section 30240 (b) – "Environmentally sensitive habitat areas, adjacent developments" states:

> *Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.*

CCA Section 30244 – "Archaeological or paleontological resources" states:

> *Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required.*

Consistency Review

It is the position of the DAF that ESHA policy, in particular Section 30240(a) of the Coastal Act, is not applicable to the activities only affecting VSFB property. While the CZMA allows the CCC to review federal agency activities and actions that have reasonably foreseeable effects on coastal uses or resources in the coastal zone (of VSFB property) affecting any land or water use or natural resource, Section 304 of the CZMA defines coastal zone to exclude "lands the use of which is by law subject solely to the discretion of or which is held in trust by the Federal Government, its officers or agents." SLD 30 is voluntarily analyzing some of the below species on VSFB property (no reasonably foreseeable affects off VSFB property) as well as those off VSFB property.

The Proposed Action does not involve any construction or ground disturbing activities. However, multiple federally listed species protected under the Endangered Species Act (ESA), potential habitat that supports these listed species, and several state special status species occur within the vicinity of SLC-4 and downrange that could experience effects due to launch and landing.

Table 3.2-4 contains the species that occur within the noise footprint that are federally listed as threatened or endangered under the ESA or proposed for listing under the ESA. The DAF determined these species may be potentially affected by the Proposed Action from noise and/or construction-related impacts on VSFB property. The DAF initiated formal consultation with the USFWS for these species and the Biological Assessment (Appendix D; MSRS 2024) has been shared with the CCC Staffers and is included in Appendix D. Full details of all analyses described below can be found in the Biological Assessment. In addition to ESA-listed species, VSFB reports, the California Natural Diversity Database, eBird, NMFS aerial

pinniped count data, and Naval Base Ventura County Point Mugu pinniped count data were utilized to determine presence of sensitive species. The full list of sensitive species is included in Appendix B.

Table 3.2-4: Determination of Potential Impacts to Federally Listed and Proposed Threatened & Endangered Species

Common Name	Scientific Name	Federal Listing	Critical Habitat	Effects Determinations for the Proposed Action
Tidewater Goby	*Eucyclogobius newberryi*	Endangered	Designated, no overlap with Action Area	May affect, but is not likely to adversely affect.
Unarmored Threespine Stickleback	*Gasterosteus aculeatus williamsoni*	Endangered	Not designated	May affect, but is not likely to adversely affect.
California Tiger Salamander	*Ambystoma californiense*	Endangered	No Effect	May affect, but is not likely to adversely affect.
California Red-legged Frog	*Rana draytonii*	Threatened	No effect	May affect, and is likely to adversely affect.
Arroyo Toad	*Anaxyrus californicus*	Endangered	No Effect	May affect, not likely to adversely affect.
Western Spadefoot	*Spea hammondii*	Unlisted	N/A	May affect, but is not likely to adversely affect.
Southwestern Pond Turtle	*Actinemys pallida*	Unlisted	N/A	May affect, and is likely to adversely affect.
Marbled Murrelet	*Brachyramphus marmoratus*	Threatened	Designated, no overlap with Action Area	May affect, but is not likely to adversely affect.
Southwestern Willow Flycatcher	*Empidonax traillii extimus*	Endangered	No Effect	May affect, but is not likely to adversely affect.
Least Bell's Vireo	*Vireo bellii pusillus*	Endangered	Designated, no overlap with Action Area	May affect, but is not likely to adversely affect.

Common Name	Scientific Name	Federal Listing	Critical Habitat	Effects Determinations for the Proposed Action
Western Snowy Plover	*Charadrius nivosus*	Threatened	No effect	May affect, and is likely to adversely affect.
California Least Tern	*Sternula antillarum browni*	Endangered	Not designated	May affect, and is likely to adversely affect.
California Condor	*Gymnogyps californianus*	Endangered	Designated, no overlap with Action Area	May affect, but is not likely to adversely affect.
California Gnatcatcher	*Polioptila californica californica*	Threatened	No Effect	May affect, not likely to adversely affect.
Light-footed Clapper Rail	*Rallus obsoletus levipes*	Endangered	Not designated	May affect, not likely to adversely affect.

Launch monitoring conducted between 2017 and 2023 has not found significant effects to California red-legged frog (CRLF), California least tern (LETE), or western snowy plover (SNPL). Monitoring has not found launch noise to have an adverse effect on CRLF, including call frequency. Nesting terns and plovers have been found to hunker down or briefly flee during noise events, but no damage to eggs has been found that can be directly attributed to the noise event. A detailed discussion of potential effects to each ESA-listed species is included in Appendix F.

Note that sonic boom model results can vary in certain geographic locations and vary in intensity as a result of specific mission trajectories and meteorological conditions on the day of the launch. The sonic boom contours depicted in the figures included in Appendix B represent example predicted model results for median meteorological conditions, not actual measurements nor precise predictions. For easterly trajectories, sonic booms may affect southeastern Santa Barbara County, Ventura County, and Los Angeles County on the mainland (Figure 3.2-4). The majority of sonic booms that would affect these areas would be less than 1.0 psf. Even with identical trajectories, atmospheric conditions create considerable variation in where sonic booms effects occur and the level of affects. To account for this variation, PCBoom can utilize meteorological parameters in the model that effect where and at what level a sonic boom may impact the surface of the earth. In the late 1990's, SRS Technologies, Inc. assembled a series of daily meteorological profiles across 10 years (1984-1994, one per day for 10 years) from radiosonde data for weather balloons released by the VSFB weather squadron. The data include pressure, temperature, wind speed, and wind direction along an elevational profile from ground, every 1,000 feet (ft), to 110,000 ft. Figure 3.2-4 depicts the overlaid output from sonic boom modeling software (PCBoom) for four actual SpaceX easterly trajectories, each trajectory run between 29 and 34 times, each run representing 1 of between 29 and 34 randomly selected meteorological profiles that capture potential weather conditions throughout the year (125 model outputs total) overlaid in the image. In order to depict the potential variability in results from multiple model outputs under many potential conditions, these results have not

been transformed into contours. This also enables an evaluation of the likelihood that specific areas within the overall potential impact area, may be affected at different sonic boom intensities. 15% of model runs predicted any affects in eastern Santa Barbara County; 50% of these sonic boom levels were less than 0.25 psf, 87% were less than 1.0 psf, and 0.3% were greater than 2.0 psf. The highest level predicted for eastern Santa Barbara County was 2.13 psf. 97% of the model runs predicted sonic boom affects within Ventura County; 65% were less than 0.25 psf, 86% were less than 1.0 psf, and 0.04% were greater than 2.0 psf. The highest predicted boom level predicted for Ventura County 2.03 psf. 94% of model runs predicted affects in western Los Angeles County; 95% were less than 0.25 psf, and 100% were less than 0.75 psf. For sensitive species occurring in eastern Santa Barbara, Ventura, and Los Angeles Counties, the likelihood of sonic boom affects are evaluated using this approach in the discussion below.

Sensitive species in the coastal zone of eastern Santa Barbara County, Ventura County, and western Los Angeles County may experience a sonic boom during ascent of southeasterly launches. A noise-induced startle response could occur but would vary by species and intensity of the sonic boom. As discussed above, these sonic booms are expected to be of generally low levels and would be infrequent. The exact location and intensity of a sonic boom would vary launch to launch. There is no expectation of long-term or permanent affects to sensitive species or their reproductive success rates. A species may experience a brief startle response but would be expected to resume normal behavior quickly. Sensitive species that live underwater would be expected to see no effect, as little sound travels through the air-water interface. There would be no adverse effect to habitat as a result of sonic booms.

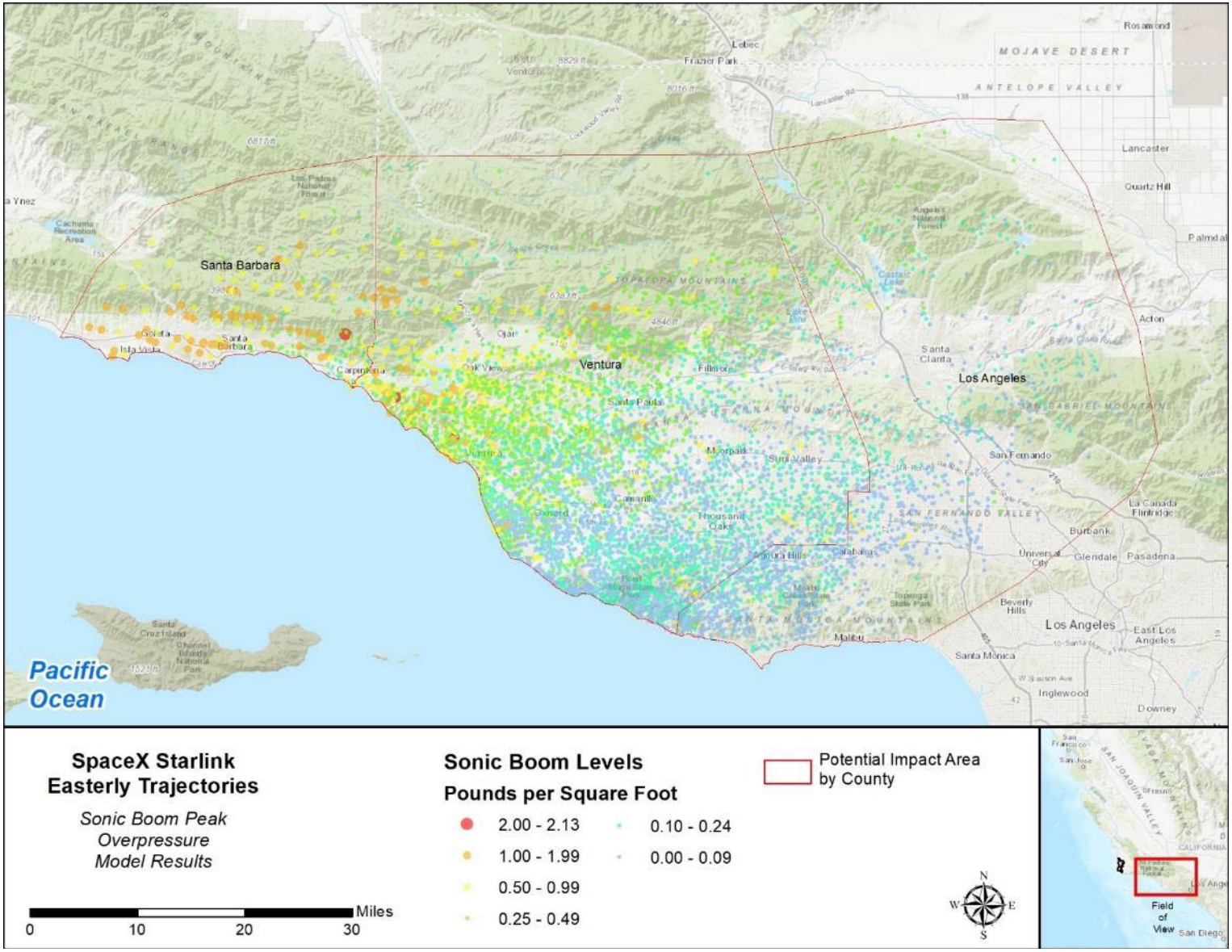

Figure 3.2-4. Potential sonic boom impact areas in eastern Santa Barbara, Ventura, and Los Angeles Counties

Reporting

The DAF would send an annual report to the Commission on all monitoring work conducted for biological resources and outline the data and results collected to date, and any initial conclusions regarding potential effects to the species resulting from the Proposed Action. The report will include the annual reports prepared for the USFWS for SNPL, LETE, and CRLF, and bat monitoring. In addition, the DAF would provide a report to the Commission 5 years from project implementation on how the Proposed Action is, or is not, affecting the surrounding special-status species and their habitats.

Consistency Review Conclusion

The DAF and USFWS initiated formal consultation for effects resulting from the Proposed Action that may affect, but are not likely to adversely affect the tidewater goby, unarmored threespine stickleback, California tiger salamander, western spadefoot, marbled murrelet, southwestern willow flycatcher, least bell's vireo, California condor, California gnatcatcher, and light-footed clapper rail. The Proposed Action may affect and are likely to adversely affect the California red-legged frog, southwestern pond turtle, western snowy plover, and California least tern and have implemented and will continue to implement the measures in the BO for the 36, and will also implement any additional measures that USFWS may add in the BO issued under the reinitiation of consultation for the increase to 50 launches annually. As such, in applying such measures, the DAF has determined that the Proposed Action would result in population-level effects on any biological resource.

Therefore, the Proposed Action with the implementation of such measures would be fully consistent with Section 30240 (b) and Section 30244 of the CCA.

4 STATEMENT OF CONSISTENCY

The DAF has reviewed the CCMP and has determined that the policies identified in Section 3.1 of this CD do not apply to the Proposed Action. In addition, the DAF has determined that all or parts of the policies reviewed in Section 3.2 of this CD are relevant for purposes of assessing whether the project would be fully consistent with the CCMP. These policies include Sections 30210, 30213, 30214, 30220, 30230, 30231, 30232, 30234, 30234.5, and 30240 (limited as not applicable on federal property).

An effects test was conducted by the DAF to analyze how and to what degree the Proposed Action would affect California coastal zone uses and resources, as defined and/or described in the relevant policies. The results of the effects test demonstrate that some components of the Proposed Action may have short-term, temporary effects to California coastal zone uses and resources. While some biological species may be temporarily affected, the Proposed Action would not have population-level permanent effects. The DAF would implement offsets, minimization measures, standard operating procedures and EPMs for the Proposed Action (Appendix A), to be fully consistent with the enforceable policies. The DAF initiated formal consultation with the USFWS and completed informal consultation with NMFS for potential effects on species listed under the ESA. NMFS has issued a LOA to the DAF for potential Level B Harassment of marine mammals due to rocket, missile, or aircraft activities from VSFB. Therefore, the Proposed Action is fully consistent with the enforceable policies of the CCMP.

The DAF requests the CCC concur that launch operations at SLC-4 on VSFB would be consistent with CCA enforceable policies.

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APPENDIX A – ENVIRONMENTAL PROTECTION MEASURES

Implementing the environmental protection measures (EPMs), outlined in Tables A.1-1 through A.5-1, would avoid or minimize potential adverse effects to various environmental resources during executing of the Preferred Alternative. Qualified SpaceX personnel or contractor staff would oversee fulfilling EPMs.

A.1 AIR QUALITY

The Santa Barbara County Air Pollution Control District (SBCAPCD) and California Air Resources Board (CARB) requires the dust control measures described in Table A.1-1 to decrease fugitive dust emissions, as applicable to the Proposed Action.

Table A.1-1: Control Measures to Decrease Emissions

Environmental Protection Measures – Air Quality
✓ Any portable equipment powered by an internal combustion engine with a rated horsepower of 50 brake horsepower or greater used for this project shall be registered in the California State-wide Portable Equipment Registration Program or have a valid SBCAPCD Permit to Operate.
✓ Ultra-low sulfur diesel fuel (15 parts per million by volume) will be used for all diesel equipment.
✓ CARB-developed idling regulations will be followed for trucks during loading and unloading.
✓ When feasible, equipment will be powered with Federally mandated “clean” diesel engines.
✓ The size of the engine in equipment and number of pieces of equipment operating simultaneously for the project should be minimized.
✓ Engines should be maintained in tune per manufacturer or operator’s specification.
✓ U.S. Environmental Protection Agency (USEPA) or CARB-certified diesel catalytic converters, diesel oxidation catalysts, and diesel particulate filters may be installed on all diesel equipment.
✓ SpaceX shall adhere to the CARB In-Use Off-Road Diesel-Fueled Fleets Regulation (CARB 2024) for fleet management and fuel selection.
✓ CARB diesel will be the only fuel combusted in the engines while in California Coastal Waters

A.2 TERRESTRIAL BIOLOGICAL RESOURCES

The EPMs listed below would be implemented to avoid, minimize, or characterize the effects of the Proposed Action on terrestrial biological resources. These EPMs require various levels of biological competency from personnel completing specific tasks, as defined in Table A.2-1.

Table A.2-1: Biological monitoring qualifications

Biologist Level	Necessary Qualifications
Permitted Biologist	Biologist with a valid and current USFWS section 10(a)(1)(A) Recovery Permit or specifically named as an approved biologist in a project-specific BO. The DAF will coordinate with the USFWS prior to assigning permitted biologists to this project
USFWS Approved Biologist	Biologist with the expertise to identify species listed under the Endangered Species Act (ESA) and species with similar appearance. The DAF will review and approve the resumes from each individual, and then submit them to the USFWS for review and approval no less than 15 days prior to the start of the Proposed Action. Each resume will list their experience and qualifications to conduct specific actions that could potentially affect listed species and their habitats. A USFWS-approved biologist could train other biologists and personnel during surveys and project work; in some cases, a USFWS-approved biologist could also provide on-site supervision of other biologists.
Qualified Biologist	Biologist trained to accurately identify specific federally listed species and their habitats by either a Permitted or USFWS-approved biologist. This person could perform basic project monitoring but would need to have oversight from a permitted or USFWS-approved biologist. Oversight will require a permitted or USFWS-approved biologist to be available for phone/email consultation during the surveys and to have the ability to visit during monitoring/survey activities if needed.

A.2.1 GENERAL MEASURES

The measures described in Table A.2-2 would be implemented to minimize the potential impacts on terrestrial biological resources.

Table A.2-2: General Measures

Environmental Protection Measures – Terrestrial Biological Resources
✓ All erosion control materials used will be from weed-free sources and, if left in place following project completion, constructed from 100 percent biodegradable erosion control materials (e.g., erosion blankets, wattles).
✓ All human-generated trash at the project site shall be disposed of in proper containers and removed from the work site and disposed of properly at the end of each workday. Large dumpsters can be maintained at staging areas for this purpose.
✓ Heavy equipment and vehicles (mowers, etc.) shall be cleaned of weed seeds prior to use in the project area to prevent the introduction of weeds and be inspected by a qualified biological

Environmental Protection Measures – Terrestrial Biological Resources
monitor to verify weed free status prior to use. Prior to site transport, any skid plates shall be removed and cleaned. Equipment should be cleaned of weed seeds daily especially wheels, undercarriages, and bumpers. Prior to leaving the project area, vehicles with caked-on soil or mud shall be cleaned with hand tools such as bristle brushes and brooms at a designated exit area; vehicles may subsequently be washed at an approved wash area. Vehicles with dry dusted soil (not caked-on soil or mud), prior to leaving a site at a designated exit area, shall be thoroughly brushed; alternatively, vehicles may be air blasted on site.
✓ Qualified biological monitors, approved by USFWS and 30 CES/CEIEA, including personnel who are familiar with and possess necessary qualifications to be approved for capture, handle, and release California red-legged frog (CRLF; *Rana draytonii*) and southwestern pond turtle (SWPT; *Actinemys pallida*), shall be present to monitor activities at all times deemed necessary by the DAF throughout the length of the project to minimize impacts on these species. The biological monitors shall be responsible for delineating areas where special-status species are located or concentrated, relocating special-status species in jeopardy of being killed or injured by construction, and inspecting equipment and equipment staging areas for fluid leaks. Prior to the onset of maintenance activities, resumes of qualified biologist(s), who would conduct the monitoring, surveying, species relocation, and other biological field activities shall be submitted by 30 CES/CEIEA to the USFWS for approval. ✓ Qualified biologists shall brief all project personnel prior to participating in project implementation activities. At a minimum, the training would include a description of the listed species and sensitive biological resources occurring in the area, the general and specific measures and restrictions to protect these resources during project implementation, the provisions of the ESA and the necessity of adhering to the provisions of the ESA, and the penalties associated with violations of the ESA. ✓ Disturbances shall be kept to the minimum extent necessary to accomplish project objectives. ✓ All erosion control materials used (i.e., gravel, sand, fill material, wattles, etc.) would be from weed-free sources. Only nonplastic, 100 percent biodegradable erosion control materials (e.g., erosion blankets, wattles) would be left in place following project completion. ✓ Portable toilets would only be placed over paved surfaces or within staging areas. ✓ All human-generated trash at the project site shall be disposed of in proper containers and removed from the work site and properly secured in a suitable trash container at the end of each workday. Special attention will be paid to ensure any food waste is properly contained. All construction debris and trash shall be removed from the work area upon completion of the project. ✓ A qualified biologist shall inspect any equipment left overnight prior to the start of work. Equipment would be checked for presence of special-status species in the vicinity and for fluid leaks. ✓ The DAF would continue to remove nonnative, invasive predators encountered during survey efforts (i.e., bullfrogs [*Lithobates catesbeianus*]). ✓ To avoid transferring disease or pathogens between aquatic habitats during the course of surveys and handling of amphibians, the biologist(s) shall follow decontamination procedures

Environmental Protection Measures – Terrestrial Biological Resources
described in the Declining Amphibian Population Task Force's (DAPTF) Code of Practice (USFWS 2002a). ✓ To avoid potential project-related impacts on nesting migratory birds, if vegetation clearing is initiated during avian nesting season (15 February through 15 August), a qualified biologist would conduct nesting bird surveys within 250 ft of the Action Area prior to project initiation and vegetation-clearing activities. If nesting migratory birds are found within the Action Area, a buffer of adequate size to prevent disturbance from project-related activities (to be determined by the biological monitor) would be marked with flagging tape to avoid disturbance. The nest would be monitored to determine impacts, if any, from project-related disturbance. In addition to ensuring compliance with the Migratory Bird Treaty Act (MBTA), this measure would ensure any undetected ESA-listed birds are not present during vegetation removal. If work occurs during nesting season, a qualified biologist would conduct bird nest surveys prior to project activities. ✓ The DAF will continue to sample water quality in lower Spring Canyon once annually when ponded water is present to ensure no project-related byproducts (i.e., launch combustion residue, operations-related run-off, etc.) have entered the waterway in a manner not previously considered in this analysis. The DAF will continue to perform sampling a minimum of once a year until 2026, as required under BO 2022-0013990-S7-001 (USFWS 2023a). The DAF will design water quality sampling to detect potential project related byproducts and any resulting associated changes in aquatic habitat (i.e., salinity, pH, etc.). Sampling will consider and utilize the most recent applicable advances in water quality sampling technology. The DAF will include maps depicting sampling locations during annual reporting. The DAF will collect and clearly present data including any associated chemical and nutrient presence, dissolved oxygen, water temperature, turbidity, and any other pertinent observations regarding ecosystem condition for purposes of annual comparison. If the DAF finds that project related water contamination occurs, the DAF will coordinate with the USFWS, address sources of input, and remediate. ✓ The DAF has established a pre-project baseline for hydrodynamic data within San Antonio Creek. During project operations the DAF will continue to collect hydrodynamic data annually using consistent data collection methodologies for purposes of comparison against the established baseline. The DAF will use these data to ensure that the proposed project's water extraction, when viewed in addition to the unknown total water extraction amount of permitted launch projects, is not measurably affecting flow rate or water level within San Antonio Creek.
Vegetation Management Area
✓ One day prior to vegetation removal from Spring Canyon, a qualified biologist will conduct surveys for CRLF within the area to be mowed. Any CRLF present will be captured by the USFWS-approved or permitted biologist, if possible, and released at the nearest suitable habitat within Spring Canyon outside of the vegetation management area, as determined by the biologist. All biologists will follow the DAPTF fieldwork code of practice (DAPTF 2019) to avoid conveying diseases between work sites and will clean all equipment between use following protocols that are also suitable for aquatic reptiles. The USFWS-approved or permitted biologist will also be present during vegetation removal

Environmental Protection Measures – Terrestrial Biological Resources
to capture and relocate CRLF to the extent that safety precautions allow. This biologist will also search for injured or dead CRLF after vegetation removal to document take. ✓ A qualified biologist will perform one CRLF survey annually during peak breeding season in Spring Canyon when individuals are most likely to be present and detectable. If CRLF are not encountered at the time of this survey, no subsequent pre/post launch surveys would occur. If CRLF is found to be present during the annual survey, pre- and post-launch surveys and relocation of any CRLF encountered would occur for each subsequent launch event. ✓ The annual report will include methodology used (i.e., survey time, date, duration, weather conditions, and a depiction of the survey area).

A.2.2 SPECIAL STATUS SPECIES

The DAF and qualified SpaceX personnel or contractor staff would ensure that all non-discretionary measures included in the USFWS BO issued for the Proposed Action, listed in Tables A.2-3 through A.2-8 would be implemented.

Table A.2-3: California Red-legged Frog Measures

✓ The DAF will maintain exhaust ducts and associated v-ditch at SLC-4 to be free of standing water to the maximum extent possible between launches to help minimize the potential to attract CRLF to SLC-4. ✓ The DAF will continue to require that a biologist survey the SLC-4 v-ditch feature for CRLF prior to any maintenance activities and relocate any encountered individuals. ✓ CRLF Baseline and Launch Monitoring: o The DAF will continue implementing a long-term monitoring plan of annual population and distribution trends associated with CRLF populations within Jalama Creek, Honda Creek, Bear Creek, and the Santa Ynez River. Through further coordination with the USFWS, the DAF will update the monitoring plan to adequately addresses potential effects on CRLF populations in Jalama Creek and other potential effects associated with the Proposed Action. ▪ The monitoring plan will clearly establish a pre-project baseline of the CRLF average population level within each impacted breeding feature (Jalama Creek, Honda Creek, Bear Creek, and Santa Ynez River) and clearly define the survey area and methodology. Following project implementation, the DAF will conduct annual surveys utilizing the same methodology within each impacted breeding feature during the breeding season when CRLF are most likely to be encountered. ▪ The monitoring plan will include passive bioacoustics monitoring (Wildlife Acoustics Song-Meter 4 or similar technology) and will establish frog calling behavior baseline within each impacted breeding feature (Jalama Creek, Honda Creek, Bear Creek, and Santa Ynez River) and any necessary appropriate control sites for purposes of signal characteristic comparison. CRLF calling behavior baseline will include applicable call characteristics (e.g., changes in signal rate, call frequency, amplitude, call timing, call duration, etc.). The DAF will ensure that bioacoustic monitoring conducted is designed to best address confounding factors in order to appropriately characterize impacts of launch,

static fire, and landing events on calling behavior. Results will be analyzed in conjunction with long term population data to ensure any observed changes in signal characteristics are not resulting in observable declines in population.

- The DAF will conduct quarterly night surveys for CRLF and spring or early summer tadpole surveys of Jalama Creek, Honda Creek, Bear Creek, and the Santa Ynez River to compare baseline CRLF occupancy data collected over the past 10 years and assess if there are any changes in CRLF habitat occupancy, breeding behavior (calling), and breeding success (egg mass and tadpole densities) within these sites. The following will be recorded and measured during the surveys:
  - CRLF detection density (number of frogs per survey hour), following the same survey methods conducted previously at these sites and throughout VSFB.
  - CRLF locations and breeding evidence (e.g., calling, egg masses).
  - Environmental data during surveys (temperature, wind speed, humidity, and dewpoint) to determine if environmental factors are affecting CRLF detection or calling rates.
  - Annual habitat assessments to measure flow rates, stream morphology, depths, and sediment to determine if any changes in CRLF metrics are associated with other environmental factors, such as drought.
- Bioacoustic monitoring will continue to be conducted during CRLF breeding season (typically November through April, depending on rainfall) to characterize the noise environment and determine if there are changes in calling behaviors as the Proposed Action commences. Passive noise recorders and environmental data loggers (temperature, relative humidity, dew point) would be placed at up to two suitable breeding locations within Jalama Creek, Honda Creek, Bear Creek, and the Santa Ynez River. Passive bioacoustic recording would occur throughout the entirety of the breeding season using the Wildlife Acoustics Song-Meter 4 (or similar technology) with software that enables autodetection of CRLF calling. The DAF will use bioacoustic monitoring to characterize and analyze impacts of launch, static fire, and landing events on calling behavior during the breeding season to assess whether Falcon noise events affect CRLF calling frequency.
- To address potential population declines that may be a result of the Proposed Action, the specified threshold criteria are described below:
  - CRLF occupancy, calling rate, or tadpole densities decline from baseline by 15 percent or more and,
  - The 15 percent decline from baseline is maintained for two consecutive years.
- If any of these threshold criteria are met and cannot confidently be attributed to other natural- or human-caused catastrophic factors, not related to the Proposed Action, that may eliminate or significantly degrade suitable habitat (see potential scenarios described below), the DAF will mitigate these impacts as discussed under CRLF Mitigation section below. Examples of potential catastrophic scenarios include the following:
  - Fire, unrelated to project activities or launch operations, that directly impacts Jalama Creek, Honda Creek, Bear Creek, or the Santa Ynez River and is demonstrated to degrade or eliminate breeding habitat.
  - Landslides or significant erosion events, unrelated to project activities or launch operations, in Jalama Creek, Honda Creek, Bear Creek, or the Santa Ynez River that results in the elimination or degradation of CRLF breeding habitat.

- Drought or climate impacts that quantifiably reduce available aquatic habitat further than what was available during existing baseline.
- Flash flood events during the breeding season that are more significant than what was documented during the existing baseline.

  - The DAF will review the purported cause of decline with the USFWS and reach agreement. If cause of declines is determined to be inconclusive, the DAF will implement proposed mitigation.

✓ CRLF Mitigation

  - The DAF will create new CRLF breeding habitat at a 2:1 ratio (habitat enhanced: habitat affected) for adverse effects to occupied CRLF habitat, as determined above, at the San Antonio Creek Oxbow Restoration Area, an established wetland mitigation site on VSFB. Historically occupied by riparian vegetation, restoration efforts will focus on enhancing this abandoned tract of agricultural land to improve sensitive species habitat in San Antonio Creek and expand breeding habitat for CRLF.
  - Additional restoration will be conducted in the "expansion area" adjacent to the existing restoration area (where restoration has already been conducted in support of other projects). Restoration will involve digging a channel that reaches ground water. Spoils generated during excavation will be used to create a berm bordering the channel that will be planted with willows. This method is already being used at this site and has been proven to successfully create deep water aquatic habitat, that supports CRLF reproduction, bordered by riparian woodland. The restored habitat mirrors naturally occurring high-flow channels in San Antonio Creek.

✓ Actions taken within this area will include site preparation via herbicide application, plowing, container plant installation, seeding, willow pole planting (via water jet, hand-held power auger, or manually driving a steel rod into the ground), and watering via water truck. The mitigation actions for CRLF are included under the existing USFWS Programmatic Biological Opinion PBO (8-8-12-F-49R) and all applicable avoidance, minimization, and monitoring measures required under the PBO would be implemented.

Table A.2-4: Southwestern Pond Turtle Measures

✓ SWPT Baseline Monitoring:

  - The DAF will implement long-term monitoring of annual population and distribution trends associated with SWPT populations within Jalama Creek, Honda Creek, Bear Creek, and the Santa Ynez River. The DAF will develop a monitoring plan that adequately addresses potential short- and long-term project effects that may result from sensory pollutants. The DAF will coordinate with the USFWS during plan development and provide the USFWS the monitoring plan for review and approval within three months of project implementation to ensure that potential project related short and long-term effects are detectable and clearly defined.
    - The monitoring plan will clearly establish methods to estimate average population levels within each impacted breeding feature (Jalama Creek, Honda Creek, Bear Creek, and the Santa Ynez River) and clearly define the survey area and methodology. Mark-recapture techniques will be used to monitor population sizes and movements of individuals.
  - Annual habitat assessments to measure flow rates, stream morphology, depths, and sediment to determine if any changes in SWPT metrics are associated with other environmental factors, such as drought.

- To address potential declining trends that may be a result of the proposed project, the specified threshold criteria are described below:
  - SWPT population estimates decline by 15 percent or more and,
  - The 15 percent decline from baseline is maintained for two consecutive years.
- If any of these threshold criteria are met and cannot confidently be attributed to other natural- or human-caused catastrophic factors, not related to the Proposed Action, that may eliminate or significantly degrade suitable habitat (see potential scenarios described below), the DAF will mitigate these impacts as discussed under SWPT Mitigation section below. Examples of potential catastrophic scenarios include the following:
  - Fire, unrelated to project activities or launch operations, that directly impacts Jalama Creek, Honda Creek, Bear Creek, or the Santa Ynez River and is demonstrated to degrade or eliminate breeding habitat.
  - Landslides or significant erosion events, unrelated to project activities or launch operations, that result in the elimination or degradation of SWPT habitat.
  - Drought or climate impacts that quantifiably reduce available aquatic habitat further than what was available during existing baseline.
  - Flash flood events during the breeding season that are more significant than what was experienced during the existing baseline.
- The DAF will review the purported cause of decline with the USFWS and reach agreement. If cause of declines is determined to be inconclusive, the DAF will implement proposed mitigation.

✓ SWPT Mitigation

- The DAF will create new SWPT habitat at a 2:1 ratio (habitat enhanced: habitat affected) for adverse effects to occupied SWPT habitat, as determined above, at the San Antonio Creek Oxbow Restoration Area, an established wetland mitigation site on VSFB. Historically occupied by riparian vegetation, restoration efforts will focus on enhancing this abandoned tract of agricultural land to improve San Antonio Creek and provide habitat for SWPT.
- Additional restoration will be conducted in the "expansion area" adjacent to the existing restoration area (where restoration has already been conducted in support of other projects). Restoration will involve digging a channel that reaches ground water. Spoils generated during excavation will be used to create a berm bordering the channel that will be planted with willows. This method is already being used at the site and has proven successful at creating deep water aquatic habitat, suitable for SWPT, with adjacent riparian woodland that simulates naturally occurring high-flow channels.

✓ Actions taken within this area will include site preparation via herbicide application, plowing, container plant installation, seeding, willow pole planting (via water jet, hand-held power auger, or manually driving a steel rod into the ground), and watering via water truck. The mitigation actions for SWPT are included under the existing USFWS PBO (8-8-12-F-49R) and all applicable avoidance, minimization, and monitoring measures required under the PBO would be implemented.

Table A.2-5: Least Bell's Vireo Measures

✓ The DAF will require that a Qualified Biologist conduct point-count surveys for least Bell's vireo (LBVI; *Vireo bellii pusillus*) on VSFB and at potential breeding habitats at the Santa Ynez River

adjacent to Buellton, California during the breeding season (15 May through 15 August) concurrent with routine riparian bird surveys on VSFB, conducted once every three years. The DAF will require that Permitted Biologists conduct any required protocol level surveys.

Table A.2-6: Western Snowy Plover Measures

SNPL Monitoring
✓ The DAF will continue to implement a long-term monitoring plan of annual population and distribution trends associated with western snowy plover along Surf Beach. The DAF will update the monitoring plan to adequately address potential short- and long-term project effects that may result from the Proposed Action in coordination with the USFWS. The SNPL monitoring plan will include a clear, established baseline annual variation and decline threshold that would trigger proposed mitigation (see below). o The DAF will continue augmenting the current SNPL monitoring program on VSFB by performing acoustic monitoring and geospatial analysis of nesting activity on South Surf Beach to assess potential adverse effects from Falcon noise events. o The current Base-wide SNPL monitoring program estimates breeding effort, nest fates, and fledging success while recording patterns of habitat use through the season. This program has been augmented for the Proposed Action by placing sound level meters (SLMs) immediately inland of South Surf Beach to characterize the noise environment and any related launch and landing associated disturbance. o The DAF will perform geospatial analysis annually to identify declines in the SNPL population, nesting activity, and reproductive success that may result from cumulative effects of multiple Falcon launches and landings from SLC-4. ✓ To address potential declining trends that may be a result of the Proposed Action, the specified threshold criteria are described below. o Geospatial analysis shows a statistically significant decline (defined as a decline greater than the baseline annual variation in these variables over the past 10 years at South Surf Beach) in population or reproductive success, and o the decline from baseline maintains over two consecutive years within the areas impacted by noise from the Falcon program. ✓ If any of these threshold criteria are met and cannot confidently be attributed to other natural- or human-caused catastrophic factors, not related to the proposed action, that may eliminate or significantly degrade suitable habitat (see potential scenarios described below), the DAF will mitigate for these impacts as discussed under the SNPL Mitigation section below. Examples of potential catastrophic scenarios include the following: o Significantly higher levels of tidal activity, predation, etc. as compared with the existing baseline and demonstrable across remainder of base population. o Significant avian disease demonstrable across the recovery unit. o Separate work activities (i.e., restoration efforts) not related to project. ✓ The DAF will review the purported cause of decline with the USFWS and reach agreement. If the cause of declines is determined to be inconclusive, the DAF will implement proposed mitigation. ✓ Motion triggered video cameras will be used during the breeding season (1 March through 30 September) to determine nest fates and potential impacts to nests due to launches and landings to reduce disturbance associated with human activity within breeding habitat.

- The DAF will monitor active nests at South Surf Beach with motion triggered video cameras during the breeding season at whichever of the following is greater within the modeled 4.0 pounds per square foot (psf) zone to assess potential novel effects that may result from frequent launching: (i) 10 percent of active SNPL nests, or (ii) 4 active SNPL nests. The DAF will monitor at whichever the following is greater within the modeled 3.0 to 4.0 psf zone: (iii) 10 percent of active SNPL nests, or (iv) 2 active SNPL nests. The DAF will monitor at whichever the following is greater within the modeled 2.0 to 3.0 psf zone: (v) 5 percent of active SNPL nests, or (vi) 4 active SNPL nests.
- Cameras will be placed in a manner to minimize disturbance to nesting plovers; this will be determined in the field based on the best judgement of a permitted biologist.
- The DAF will employ camera technology that is capable of long-term recording and time marking the moment of disturbance events.
- The DAF will implement landscape level camera monitoring in conjunction with individual nest cameras to document SNPL response to launch and sonic boom noise and overpressures. The landscape level camera(s) will be capable of long-term recording, time marking the moment of disturbance events, and deployed adjacent to areas of highest density nesting to best capture population level reaction. The DAF will coordinate camera installation and placement with a USFWS approved biologist to ensure no additional effects would occur (i.e., perching for raptors).
- The DAF will review SNPL nest camera recordings as soon as possible after potential disturbance events.

✓ The DAF will rescue any SNPL eggs abandoned on Surf Beach during disturbance events. The DAF will develop and/or fund a program to incubate any rescued abandoned eggs and release fledglings.

✓ SNPL Mitigation

- The DAF will increase predator removal efforts to include the non-breeding season, particularly focusing on raven removal at and adjacent to VSFB beaches.
- Given that all available SNPL nesting habitat on VSFB has already or will soon (under current planning) be restored, the biggest factor reducing nest success is predation with significant impacts from ravens. Ravens, which have historically been absent to rare in the region, are now common, and the population has increased substantially over the past two decades. Raven population increases are due to human activities which have allowed their numbers to increase and range to expand each year. Off-season raven control efforts will help reduce the population on Base prior to the breeding season which should increase nest success.

✓ Predator control actions will include trapping, shooting, and tracking SNPL predators from VSFB beaches and surrounding areas on Base. The mitigation actions for SNPL are permitted under an existing USFWS BO (8-8-12-F-11R; USFWS 2015a) and all applicable avoidance, minimization, and monitoring measures required under BO 8-8-12-F-11R will be implemented. CEIEA also maintains a USFWS depredation permit

Table A.2-7: California Least Tern Measures

LETE Monitoring
✓ The DAF will continue to implement a long-term monitoring plan of annual population and distribution trends associated with California least tern at Purisima Point. The DAF will update

the monitoring plan that adequately addresses potential short- and long-term project effects of the Proposed Action in coordination with the USFWS. The LETE monitoring plan will include a clear, established baseline annual variation and decline threshold that would trigger proposed mitigation (see below).

- ✓ The DAF has augmented the current LETE monitoring program on VSFB by performing acoustic monitoring and geospatial analysis of nesting activity at the Purisima LETE colony to assess potential adverse effects from Falcon 9 noise events.
  - The current Base-wide LETE monitoring program estimates breeding effort, nest fates, and fledging success while recording patterns of habitat use through the season. This program has been augmented for the Proposed Action by placing SLMs immediately inland of the LETE colony at Purisima Point to characterize the noise environment and any related launch and landing associated disturbance.
  - The DAF will perform geospatial analysis annually to identify declines in the LETE population, nesting activity, and reproductive success that may result from cumulative effects of multiple launches and landings from SLC-4.
- ✓ To address potential declining trends that may be a result of the Proposed Action, the specified threshold criteria is described below.
  - Geospatial analysis shows a statistically significant decline (defined as a decline greater than the baseline annual variation in these variables over the past 10 years at Purisima Point) in population or reproductive success, and
  - the decline from baseline maintains over two consecutive years within the areas impacted by noise from the Falcon program.
- ✓ If any of these threshold criteria are met and cannot confidently be attributed to other natural- or human-caused catastrophic factors, not related to the Proposed Action, that may eliminate or significantly degrade suitable habitat (see potential scenarios described below), the DAF will mitigate for these impacts as discussed under the LETE Mitigation section below. Examples of potential catastrophic scenarios include the following:
  - Significantly higher levels of predation, lower prey availability, etc. as compared with the existing baseline and demonstrable across remainder of base population.
  - Significant avian disease demonstrable across the recovery unit.
  - Separate work activities (i.e., restoration efforts) not related to project.
- ✓ The DAF will review the purported cause of decline with the USFWS and reach agreement. If the cause of declines is determined to be inconclusive, the DAF will implement proposed mitigation.
- ✓ Motion triggered video cameras will be used during the breeding season (typically 15 April to 15 August) to determine nest fates and potential impacts to nests due to launches and landings to reduce disturbance associated with human activity within breeding habitat.
  - The DAF will monitor at whichever of the following is greater within the Purisima Point colony: (i) 10 percent of active LETE nests, or (ii) 4 active LETE nests.
  - Cameras will be placed in a manner to minimize disturbance to nesting terns; this will be determined in the field based on the best judgement of a permitted biologist.
  - The DAF will employ camera technology that is capable of long-term recording and time marking the moment of disturbance events.
  - The DAF will implement landscape level camera monitoring in conjunction with individual nest cameras to document LETE response to launch and sonic boom noise

and overpressures. The landscape level camera(s) will be capable of long-term recording, time marking the moment of disturbance events, and deployed adjacent to areas of highest density nesting to best capture population level reaction. The DAF will coordinate camera installation and placement with a USFWS approved biologist to ensure no additional effects would occur (i.e., perching for raptors).
    - The DAF will review LETE nest camera recordings as soon as possible following disturbance events.
- ✓ The DAF will rescue any LETE eggs abandoned at the Purisima Point colony during disturbance events. The DAF will develop and/or fund a program to incubate any rescued abandoned eggs and release fledglings.
- ✓ LETE Mitigation
    - The DAF will increase predator removal efforts to include the non-breeding season, particularly focusing on raven removal at and adjacent to VSFB beaches.
    - One factor reducing nesting success is nest predation. Off-season predator control will help reduce the population on Base prior to the breeding season which should increase nest success.
- ✓ Predator control actions will include trapping, shooting, and tracking LETE predators from VSFB beaches and surrounding areas on Base. The mitigation actions for LETE are permitted under an existing USFWS BO (8-8-12-F-11R; USFWS 2015a) and all applicable avoidance, minimization, and monitoring measures required under BO 8-8-12-F-11R will be implemented. CEIEA also maintains a USFWS depredation permit.

Table A.2-8: California Condor Measures

- ✓ The DAF will continue to coordinate with the USFWS on a quarterly basis to determine if any California condors are present at VSFB. The DAF will contact the USFWS if California condors appear to be near or within the area affected by a launch from SLC-4. In the unlikely event that a California condor is nearby, qualified biologists will monitor California condor movements in the vicinity of VSFB and coordinate with the USFWS to analyze data before, during, and after launch events to determine whether any changes in movement occur.
- ✓ The DAF will continue to coordinate with current USFWS personnel, including Arianna Punzalan, Supervisory Wildlife Biologist (arianna_punzalan@fws.gov, (805) 377-5471); Joseph Brandt, Wildlife Biologist (joseph_brandt@fws.gov, 805-677-3324 or 805-644-1766, extension 53324), or Steve Kirkland, California Condor Field Coordinator, USFWS California Condor Recovery Program (steve_kirkland@fws.gov, 805-644-5185, extension 294). The Space Force will also coordinate with current Ventana Wildlife Society personnel, Joe Burnett (joeburnett@ventanaws.org, 831-800-7424).

A.3 MARINE BIOLOGICAL RESOURCES

The DAF and qualified SpaceX personnel or contractor staff would ensure that all applicable minimization, monitoring, and avoidance measures listed in Tables A.3-1 and A.3-2 would be implemented during operation of the Proposed Action.

Table A.3-1 Minimization, Monitoring, and Avoidance Measures

✓ Sonic boom modeling (commercially available modeling software [PCBoom] or an acceptable substitute) would be completed prior to each launch to verify and estimate the overpressure levels and footprint.
✓ Semi-monthly surveys (two surveys per month) must be conducted to monitor the abundance, distribution, and status of pinnipeds at VSFB. Whenever possible, these surveys are timed to coincide with the lowest afternoon tides of each month when the greatest numbers of animals are usually hauled out. ✓ Marine mammal monitoring and acoustic measurements will be conducted at the NCI if the sonic boom model indicates that pressures from a boom will reach or exceed 7 psf from 1 January through 28 February, 5 psf from 1 March through 31. July, or 7 psf from 1 August through 30 September. No monitoring is required on NCI from 1 October through 31 December.
✓ The USSF will ensure that a USFWS-approved biologist monitors southern sea otters from a monitoring location within occupied habitat on VSFB where landing events at SLC-4 West (W) generate sonic booms of 2.0 psf or greater (i.e., Sudden Flats). Upon establishment of any new southern sea otter populations within areas of potential impact from project-related activities, the USSF will consider additional monitoring locations; ✓ A USFWS-approved biologist will conduct daily counts of sea otters from the monitoring location when otters are most likely rafting (between 09:00AM and 12:00PM) beginning 3 days before and continuing 3 days after and landing events, noting any mortality, injury, or abnormal behavior. Personnel will use both binoculars (10X) and a high-resolution (50–80X) telescope for monitoring; and ✓ Acoustic recording equipment will be deployed at or near the monitoring location to document and quantify sonic boom levels.
✓ The USSF will submit a report, detailing results of the monitoring program, to the Office of Protected Resources, NMFS, and the West Coast Regional Administrator, NMFS, in compliance with the requirements of the current LOA. ✓ Discoveries of injured or dead marine mammals, irrespective of cause, would be reported to the Office of Protected Resources, NMFS, and the West Coast Regional Stranding Coordinator, NMFS. Specific protocol would be followed depending on the cause of the event, if cause is unknown, and whether injury or death was relatively recent.
To reduce the risk of injury or mortality of ESA-listed species in the marine environment, the following EPMs will be implemented during first stage and fairing recovery operations: ✓ The USSF will ensure that all personnel associated with vessel support operations are instructed about marine species and any critical habitat protected under the ESA that could be present in the proposed landing area. Personnel will be advised of the civil and criminal penalties for harming, harassing, or killing ESA-listed species. ✓ Support vessels will maintain a minimum distance of 150 ft from sea turtles and a minimum distance of 300 ft from all other ESA-listed species. If the distance ever becomes less, the vessel will reduce speed and shift the engine to neutral. Engines would not be re-engaged until the animal(s) are clear of the area. ✓ Support vessels will maintain an average speed of 10 knots or less.

✓ Support vessels will attempt to remain parallel to an ESA-listed species' course when sighted while the watercraft is underway (e.g., bow-riding) and avoid excessive speed or abrupt changes in direction until the animal(s) has left the area. ✓ The USSF will immediately report any collision(s), injuries, or mortalities to ESA-listed species to the appropriate NMFS contact.
✓ To offset the impacts from unrecoverable debris, SpaceX would make an annual contribution to the California Lost Fishing Gear Recovery Project. This includes the weather balloon and radiosonde; parachute and assembly; and parafoil and assembly. For every 3 lbs of unrecovered debris, SpaceX would make a compensatory donation of $20.00, which is sufficient to recover 1 lb. of lost fishing gear.
✓ Vessels will enter the harbor, to the extent possible, only when the tide is too high for pinnipeds to haul-out on the rocks. The vessel will reduce speed to 1.5 to 2 knots once the vessel is within 3 mi of the harbor. The vessel will enter the harbor stern first, approaching the wharf and mooring dolphins at less than 0.75 knots.
✓ Vessels using the harbor will follow a predetermined route that limits crossing kelp beds.
✓ No vessels will anchor within kelp beds or hard-bottom habitat outside of the dredge footprint, and no vessel anchors within the dredge footprint will be placed in kelp or hard bottom habitat.
✓ If nighttime activities are to occur at any time from dusk to dawn, the required lighting will be turned on before dusk and left on the entire night. Lights will not be turned on or off between dusk and dawn.
✓ Activities that could result in the startling of wildlife in the vicinity of the harbor will be allowed so long as they are initiated before dusk and not interrupted by long periods of quiet (in excess of 30 minutes). If such activities cease temporarily during the night, they will not be reinitiated until dawn.
✓ Starting-up of activities (either initially or if activities have ceased for more than 30 minutes) will include a gradual increase in noise levels if pinnipeds are in the area.
✓ The restrictions on access to the intertidal area will be included in the personnel orientations provided at project startup and for new employees.
✓ The tug vessels and barge will be periodically cleaned as necessary to avoid impacts related to the transfer of non-native invasive pests and vegetation to VSFB Harbor.

Table A.3-2 Southern Sea Otter Measures

✓ The DAF will continue to monitor southern sea otters during landing events at SLC-4W whenever a sonic boom of 2 psf or greater is predicted to be generated by the landing that would impact southern sea otter habitat. The monitoring locations are selected based on where pressure waves greater than 2 psf are predicted to impact and the relation of these locations to occupied sea otter habitat, which is commonly Sudden Flats on south VAFB. However, no monitors are allowed within the "Impact Limit Line" during launch or landing. If otter counts by the United States Geological Survey, or other non-related survey efforts, show the establishment of new populations within the action area, new survey locations would be considered for landing events. o A USFWS-approved biologist would conduct daily counts of sea otters at the selected monitoring location beginning 3 days before and continuing 3 days after the landing. The monitor would note any mortality, injury, or abnormal behavior observed during these counts. Weather permitting; the counts would be conducted between 09:00 AM

and 12:00 PM when otters are most likely to be rafting to help maintain daily consistency in detectability. Monitors would use both binoculars (10X) and a high-resolution 50—80X telescope to conduct counts; and o Acoustic recording equipment would be deployed at or near the monitoring location to document and quantify sonic boom levels. ✓ If no long term effects on sea otter populations are observed after three years of full launch cadence the monitoring will be discontinued after review of data and concurrence of the USFWS.

A.4 WATER RESOURCES

The following measures, as described in Table A.4-1, would be implemented to minimize impacts on water resources and stormwater:

Table A.4-1: Water Resources and Stormwater Measures

✓ The Proposed Action shall comply with storm water management plans, including Best Management Practices (BMPs) following the latest California Stormwater Quality Association's Stormwater Best Management Practices Handbook.
✓ Spring Canyon will be routinely monitored for erosion where vegetation management occurs. BMPs would be utilized as needed to reduce erosion.
✓ SpaceX will continue to ensure that water ejected from the flame bucket during launches does not result in any overland surface flow reaching Spring Canyon by maintaining current v-ditches within the SLC-4 fenceline and routinely assessing whether any additional diversion structures are necessary.
✓ All equipment will be properly maintained and free of leaks during operation, and all necessary repairs carried out with proper spill containment.
✓ Fueling equipment will only occur in pre-designated areas with spill containment materials placed around the equipment before refueling. Stationary equipment will be outfitted with drip pans and hydrocarbon absorbent pads.
✓ Adequate spill response supplies will be maintained at the site during operation for immediate response and clean-up of any fuel spills.
✓ Hazardous materials will be stored in proper containers, placed in proper containment facilities covered prior to rain events.
✓ Trash disposal containers will be covered at all times.
✓ SpaceX and its contractors will implement best management practices to prepare for and respond to a spill. These practices include fueling equipment at least 100 ft from the water, fueling only in areas designed to capture runoff or spilled fuel, and maintaining spill response kits.

A.5 Cultural Resources

SpaceX personnel or contractor staff will ensure the following measures, described in Table A.5-1, would be implemented to minimize impacts on sensitive archaeological resources:

Table A.5-1: Cultural Resources Measures

Cultural Resources Measures
✓ If previously undocumented cultural resources are discovered during maintenance activities, work would stop, and the procedures established in 36 C.F.R. 800.13 and the VSFB Integrated Cultural Resources Management Plan shall be followed.

A.6 Hazardous Materials and Waste Management

SpaceX personnel or contractor staff will ensure the following measures, described in Table A.6-1, would be implemented to minimize impacts on minimize impacts on hazardous materials and waste management:

Table A.6-1: Hazardous Materials and Waste Management Measures

✓ Proper disposal of hazardous waste would be accomplished through identification, characterization, sampling (if necessary), and analysis of wastes generated.
✓ All hazardous materials would be properly identified and used IAW manufacturer's specifications to avoid accidental exposure to or release of hazardous materials required to operate and maintain construction equipment.
✓ Hazardous materials would be procured through or approved by the Vandenberg Hazardous Materials Pharmacy (HazMart). Monthly usage of hazardous materials would be reported to the HazMart to meet legal reporting requirements.
✓ All equipment would be properly maintained and free of leaks during construction and maintenance activities. All necessary equipment maintenance and repairs would be performed in pre-designated controlled, paved areas to minimize risks from accidental spillage or release. Prior to construction, a Spill Prevention Plan would be submitted to SLD 30 Environmental Compliance Section for approval.
✓ SpaceX would ensure employees and contractor staff are trained in proper prevention and cleanup procedures.
✓ SpaceX would store liquids, petroleum products, and hazardous materials in approved containers and drums and would ensure that any open containers are covered prior to rain events.
✓ Per 40 C.F.R. Part 112, Spill Prevention, Control, and Countermeasure Plan, Phantom would place chemicals, drums, or bagged materials on a pallet and, when necessary, secondary containment.

APPENDIX B – SENSITIVE SPECIES AND WILDLIFE OCCURRENCE WITHIN THE PROPOSED ACTION AREA

Table B-0-1 through Table B.0-4 includes all special status species records and survey locations from multiple sources in the noise footprint. Figures B.0-1 through Figure B.0-8 include localities of additional

special status species within the noise footprint, gathered from DAF long-term monitoring and annual survey efforts and the CNDDB.

Table B.0-1: Federal and State Special Status Species Occurrence Within the Proposed Action Area

Species	Status		Occurrence within the Coastal Zone of the Proposed Action Area[1, 2]
	USFWS	CDFW	
Invertebrates			
Crotch bumble bee (*Bombus crotchii*)	-	SSC	Present in the noise footprint on VSFB, in eastern Santa Barbara, Ventura, and western Los Angeles Counties.
Monarch butterfly (*Danaus plexippus*)	Proposed	Special Animal*	Overwintering stands within noise footprint on VSFB, in eastern Santa Barbara, Ventura, and western Los Angeles Counties.
Fish			
Tidewater goby (*Eucyclogobius newberryi*)	FT	-	Historic occurrence in Honda Creek on VSFB; surveys have not detected since 2001. Present in San Antonio Creek and Jalama Creek on VSFB. Present in coastal streams within the noise footprint in eastern Santa Barbara, Ventura, and western Los Angeles Counties.
Unarmored Threespine Stickleback (*Gasterosteus aculeatus*)	FE	SE	Currently extirpated on Honda Creek on VSFB; historic introduction in Honda Creek in 1984. No individuals have been detected in Honda Creek since the late 1990's. Present in San Antonio Creek on VSFB.
Arroyo chub (*Gila orcuttii*)	-	SSC	Not present on Honda Creek and San Antonio Creek on VSFB. Present within the noise footprint on Malibu and Calleguas Creeks in Ventura and western Los Angeles Counties.
steelhead - southern California DPS (*Oncorhynchus mykiss*)	FE	Candidate	Present within the noise footprint in coastal streams and rivers of Santa Barbara and western Los Angeles Counties.
Amphibians			

Species	Status		Occurrence within the Coastal Zone of the Proposed Action Area[1, 2]
	USFWS	CDFW	
California red-legged frog (*Rana draytonii*)	FT	SSC	Documented within noise footprint on VSFB and coastal Santa Barbara County.
Coast range newt (*Taricha torosa*)	-	SSC	Present within the noise footprint in coastal streams of Santa Barbara, Ventura, and western Los Angeles Counties
Reptiles			
Northern legless lizard (*Anniella pulchra*)	-	SSC	Present within the noise footprint in Santa Barbara County.
Southern legless lizard (*Anniella stebbinsi*)	-	SSC	Present within the noise footprint in Ventura and western Los Angeles Counties.
Coastal whiptail (*Aspidoscelis tigris stejnegeri*)	-	SSC	Present within the noise footprint in western Los Angeles County.
Coast horned lizard (*Phrynosoma blainvillii*)	-	SSC	Present within the noise footprint in Santa Barbara, Ventura, and western Los Angeles Counties.
Southwestern pond turtle (*Actinemys pallida*)	-	SSC	Present within the noise footprint in coastal streams and wetlands of Santa Barbara, Ventura, and western Los Angeles Counties.
Two-striped garter snake (*Thamnophis hammondii*)	-	SSC	Present within the noise footprint in Honda Creek on VSFB and the noise footprint in western Santa Barbara County. Potential occurrence in the noise footprint in eastern Santa Barbara and western Los Angeles Counties.
Birds			
Allen's hummingbird (*Selasphorus sasin*)	BCC	-	Present within noise footprint in Santa Barbara, Ventura, and western Los Angeles Counties.
Bald eagle (*Haliaeetus leucocephalus*)	BCC; BGEPA	SE; Fully Protected	Documented occasional flyovers on VSFB; foraging habitat within noise footprint. Rarely present within the noise footprint in eastern Santa Barbara, Ventura, and western Los Angeles Counties.
Bank swallow (*Riparia riparia*)	-	ST	Present within noise footprint in Santa Barbara, Ventura, and western Los Angeles Counties.

Species	Status		Occurrence within the Coastal Zone of the Proposed Action Area[1, 2]
	USFWS	CDFW	
Belding's savannah sparrow (*Passerculus sandwichensis beldingi)*	-	SE	Present in coastal plains within the noise footprint in Santa Barbara, Ventura, and western Los Angeles Counties.
Black oystercatcher (*Haematopus bachmani*)	BCC	-	Present on sandy beaches and cliffs of VSFB shoreline and within the noise footprint in Santa Barbara, Ventura, and western Los Angeles Counties.
Black skimmer (*Rynchops niger*)	BCC	-	Present in nearshore ocean waters within the noise footprint in Santa Barbara, Ventura, and western Los Angeles Counties.
Brant (*Branta bernicla*)	-	SSC	Present in nearshore ocean waters within the noise footprint in Santa Barbara, Ventura, and western Los Angeles Counties.
Burrowing owl (*Athene cunicularia*)	BCC	SSC	Winters in burrows in grassland areas impacted by noise. Breeding on VSFB has not been documented in optimal breeding habitat on Base since 1984 (reflects a well-documented county-wide decline of the species). Present in coastal plains and agricultural lands within the noise footprint in eastern Santa Barbara, Ventura, and western Los Angeles Counties.
California brown pelican (*Pelecanus occidentalis californicus*)	-	Fully Protected	Present in nearshore ocean waters and roosts on beaches and rocks within the noise footprint in Santa Barbara, Ventura, and western Los Angeles Counties.
California condor (*Gymnogyps californianus*)	FE	SE	Unlikely on VSFB: may stray into noise footprint on VSFB on occasion. One documented brief occurrence on VSFB in 2017.
California least tern (*Sterna antillarum browni*)	FE	SE	Present in noise footprint in Santa Barbara, Ventura, and western Los Angeles Counties.
Costa's hummingbird (*Calypte costae*)	BCC	-	Present within the noise footprint in Santa Barbara, Ventura, and western Los Angeles Counties.

Species	Status		Occurrence within the Coastal Zone of the Proposed Action Area[1, 2]
	USFWS	CDFW	
Golden eagle (*Aquila chrysaetos*)	BGEPA	Fully Protected	Present within noise footprint on VSFB and Santa Barbara County. Rare in Ventura and western Los Angeles Counties.
Grasshopper sparrow (*Ammodramus savannarum*)	-	SSC	Present in coastal plains within the noise footprint in Santa Barbara, Ventura, and western Los Angeles Counties.
Lawrence's goldfinch (*Spinus lawrencei*)	BCC	-	Present in shrub and riparian habitat within noise footprint in Santa Barbara, Ventura, and western Los Angeles Counties.
Least Bell's vireo (*Vireo bellii pusillus*)	FE	SE	Documented within noise footprint in Santa Barbara, Ventura, and western Los Angeles Counties.
Light-footed Ridgeway's rail (*Rallus obsoletus levipes*)	FE	SE	Present in coastal salt marshes within the noise footprint of Ventura County.
Loggerhead shrike (*Lanius ludovicianus*)	BCC	SSC Nesting	Documented in shrub and riparian habitat within noise footprint in Santa Barbara, Ventura, and western Los Angeles Counties.
Long-billed curlew (*Numenius americanus*)	BCC	-	Present on rocky coastline at low tide and beaches within noise footprint in Santa Barbara, Ventura, and western Los Angeles Counties.
Marbled godwit (*Limosa fedoa*)	BCC	-	Present on sandy beaches and rocky coastline at low tide within noise footprint in Santa Barbara, Ventura, and western Los Angeles Counties.
Marbled murrelet (*Brachyramphus marmoratus*)	FT	SE	Present in nearshore ocean waters within noise footprint in Santa Barbara, Ventura, and western Los Angeles Counties.
Northern harrier (*Circus hudsonius*)	-	SSC Nesting	Present in grassland within noise footprint in Santa Barbara, Ventura, and western Los Angeles Counties.

Species	Status		Occurrence within the Coastal Zone of the Proposed Action Area[1, 2]
	USFWS	CDFW	
Nuttall's woodpecker (*Dryobates nuttallii*)	BCC	-	Present in riparian habitat within noise footprint in Santa Barbara, Ventura, and western Los Angeles Counties.
Oak titmouse (*Baeolophus inornatus*)	BCC	-	Present in riparian and non-native tree habitat within noise footprint in Santa Barbara, Ventura, and western Los Angeles Counties.
Peregrine falcon (*Falco peregrinus anatum*)	BCC Nesting	Fully Protected Nesting	Present in coastal habitat within noise footprint in Santa Barbara, Ventura, and western Los Angeles Counties.
Short-billed dowitcher (*Limnodromus griseus*)	BCC	-	Present on rocky coastline at low tide and beaches within noise footprint in Santa Barbara, Ventura, and western Los Angeles Counties.
Whimbrel (*Numenius phaeopus*)	BCC	-	Present on rocky coastline at low tide and beaches within noise footprint in Santa Barbara, Ventura, and western Los Angeles Counties.
Western snowy plover (*Charadrius nivosus nivosus*)	FT; BCC	SSC Nesting	Present on rocky coastline at low tide, nests on sandy beaches within noise footprint in Santa Barbara, Ventura, and western Los Angeles Counties.
Willet (*Tringa semipalmata*)	BCC	-	Present on rocky coastline at low tide and beaches impacted by noise in Santa Barbara, Ventura, and western Los Angeles Counties.
White-tailed kite (*Elanus leucurus*)	-	Fully Protected Nesting	Present in riparian and non-native tree habitat within noise footprint in Santa Barbara, Ventura, and western Los Angeles Counties.
Yellow warbler (*Setophaga petechia*)	BCC	SSC Nesting	Present in riparian habitat within noise footprint in Santa Barbara, Ventura, and western Los Angeles Counties.
Terrestrial Mammals			

Species	Status		Occurrence within the Coastal Zone of the Proposed Action Area[1, 2]
	USFWS	CDFW	
Pallid bat (*Antrozous pallidus*)	-	SSC	Present within the noise footprint in Santa Barbara, Ventura, and western Los Angeles Counties.
Spotted bat (*Euderma maculatum*)	-	SSC	Present within the noise footprint in Santa Barbara, Ventura, and western Los Angeles Counties.
Townsend's big-eared bat (*Corynorhinus townsendii*)	-	SSC	Present within the noise footprint in Santa Barbara, Ventura, and western Los Angeles Counties.
Western red bat (*Lasiurus blossevillii*)	-	SSC	Present within the noise footprint in Santa Barbara, Ventura, and western Los Angeles Counties.
Western mastiff bat (*Eumops perotis californicus*)	-	SSC	Present within the noise footprint in Santa Barbara, Ventura, and western Los Angeles Counties.
San Diego desert woodrat (*Neotoma lepida intermedia*)	-	SSC	Present within the noise footprint in Santa Barbara, Ventura, and western Los Angeles Counties.
South coast marsh vole (*Microtus californicus stephensi*)	-	SSC	Present within the noise footprint in Ventura County.
Southern California saltmarsh shrew (*Sorex ornatus salicornicus*)	-	SSC	Present in coastal salt marshes of Ventura County.
American badger (*Taxidea taxus*)	-	SSC	Present within noise footprint in Santa Barbara, Ventura, and western Los Angeles Counties.

Notes: BGEPA = Bald and Golden Eagle Protection Act; FE = Federally Endangered Species; FT = Federally Threatened Species; SE = State Endangered Species; SSC = California State Species of Special Concern; SE = State Endangered Species; SSC = State Candidate Species; BCC = Federal Bird of Conservation Concern

[1] Source: California Natural Diversity Database (CNDDB; 2024); eBird (2024; https://ebird.org/); and various Vandenberg Space Force Base natural resources reports.

[2] Potential presence for CNDDB species in the action area was determined by comparing spatial overlap of CNDDB records with potential noise footprint, and the Coastal Zone.

Table B.0-2:ESA-listed fish species occurrence within the Action Area

Common Name	Scientific Name	DPS or ESU	Federal Status	Presence in Action Area
Steelhead	*Oncorhynchus mykiss*	Southern California Coast	FE	Documented in the nearshore and offshore waters.[3]

Chinook salmon	*Oncorhynchus tshawytscha*	5 ESUs[1]	FT	Specific ESUs present or potentially present in the nearshore and offshore waters.[4, 5, 6, 7, 8]
Coho salmon	*Oncorhynchus kisutch*	4 ESUs[2]	FT	Documented in the nearshore and offshore waters.[9]
Green sturgeon	*Acipenser medirostris*	Southern	FT	Likely present primarily along continental shelf waters of the West Coast
Oceanic whitetip shark	*Carcharhinus longimanus*	-	FT	Present in open ocean waters from Southern California to Peru[10]
Scalloped hammerhead shark	*Sphyrna lewini*	Eastern Pacific	FE	Present in coastal and semi-oceanic water in temperate and tropical regions.[11]

Notes: ESU = Evolutionarily Significant Unit, DPS = Distinct Population Segment; FE = federally endangered; FT = federally threatened

[1] Chinook salmon ESUs include California Coastal (FT), Central Valley Spring-Run (FT), Lower Columbia River (FT), and Sacramento River Winter-Run (FT)

[2] Coho salmon ESUs include Central California Coast (FT) and Southern Oregon and Northern California Coasts (FT).

[3] Good, T.P., R.S. Waples, and P. Adams, (Eds.). 2005. Updated Status of Federally Listed ESUs of West Coast Salmon and Steelhead. Seattle, WA: U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Northwest Fisheries Science Center.

[4] Quinn, T.P., and K.W. Myers. 2005. Anadromy and the marine migrations of Pacific salmon and trout: Rounsefell revisited. Reviews in Fish Biology and Fisheries 14: 421–442.

[5] Sharma, R. 2009. Survival, Maturation, Ocean Distribution and Recruitment of Pacific Northwest Chinook Salmon (*Oncorhynchus tshawytscha*) in Relation to Environmental Factors, and Implications for Management. (Unpublished doctoral dissertation). University of Washington, Seattle, WA.

[6] Bellinger, M.R., M.A. Banks, S.J. Bates, E.D. Crandall, C.G. Garza, and P.W. Lawson. 2015. Geo-Referenced, Abundance Calibrated Ocean Distribution of Chinook Salmon (*Oncorhynchus tshawytscha*) Stocks across the West Coast of North America. PLoS One 10(7): e0131276.

[7] Satterthwaite, W.H., J. Ciancio, E.D. Crandall, M.L. Palmer-Zwahlen, A.M. Grover, M.R. O'Farrell, E.C. Anderson, M.S. Mohr, and C. Garza. 2015. Stock composition and ocean spatial distribution inference from California recreational Chinook salmon fisheries using genetic stock identification. Fisheries Research 170: 166-178.

[8] Hendrix, N., A.-M. K. Osterback, E. Jennings, E. Danner, V. Sridharan, C. M. Greene, and S.T. Lindley. 2019. Model Description for the Sacramento River Winter-run Chinook Salmon Life Cycle Model. Seattle, WA: National Marine Fisheries Service.

[9] Fisher, J.P., L.A. Weitkamp, D.J. Teel, S.A. Hinton, J.A. Orsi, E.V. Farley Jr., J.F.T. Morris, M.E. Thiess, R.M. Sweeting, and M. Trudel. 2014. Early Ocean Dispersal Patterns of Columbia River Chinook and Coho Salmon. Transactions of the American Fisheries Society 143(1): 252–272.

[10] Baum, J., E. Medina, J.A. Musick, and M. Smale. 2015. *Carcharhinus longimanus*. The International Union for Conservation of Nature Red List of Threatened Species 2015: e.T39374A85699641.

[11] Compagno, L.J.V. 1984. FAO Species Catalogue. Sharks of the World. An Annotated and Illustrated Catalogue of Shark Species Known to Date. Part 2. Carcharhiniformes (FAO Fisheries Synopsis No. 125). Tiburon, CA: San Francisco State University.

Table B.0-3: ESA-listed turtle species occurrence within the Action Area

Common Name	Scientific Name	DPS or ESU	Federal Status	Presence in Action Area
Green sea turtle	*Chelonia mydas*	East Pacific Central North Pacific	FT	Present in offshore and nearshore subtropical waters.[1]
Leatherback sea turtle	*Dermochelys coriacea*	-	FE	Present in offshore and nearshore waters.[2]
Olive ridley sea turtle	*Lepidochelys olivacea*	Mexico Pacific Coast	FE	Present in offshore and nearshore waters.[3]

Common Name	Scientific Name	DPS or ESU	Federal Status	Presence in Action Area
Hawksbill sea turtle	*Eretmochelys imbricata*	-	FE	Present in offshore and nearshore waters of Mexico.[4]
Loggerhead turtle	*Caretta caretta*	North Pacific	FE	Present in small numbers in offshore waters generally north of Point Conception.[5]

Notes: ESU = Evolutionarily Significant Unit; DPS = Distinct Population Segment; FE = federally endangered; FT = federally threatened

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[3] National Marine Fisheries Service and U.S. Fish and Wildlife Service. 2007. Olive Ridley Sea Turtle (*Lepidochelys olivacea*) 5-year Review: Summary and Evaluation. (pp. 64). Silver Spring, MD: National Marine Fisheries Service.

[4] National Marine Fisheries Service, and U.S. Fish and Wildlife Service. 2013. Hawksbill sea turtle (*Eretmochelys imbricata*) 5-year review: summary and evaluation. Jacksonville, FL: Jacksonville Ecological Services Field Station.

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Table B.0-4: Marine Mammals within the Action Area

Common Name	Scientific Name	DPS or ESU	Federal Status	Presence in Action Area
Blue whale	*Balaenoptera musculus*	-	FE; MMPA	Present with high densities in summer/fall; single individuals in winter/spring.[1]
Fin whale	*Balaenoptera physalus*	-	FE; MMPA	Present year-round with higher densities in the summer and fall.[2]
Gray whale	*Eschrichtius robustus*	Western North Pacific	FE; MMPA	Present during seasonal migration in the winter and spring.[3,4]
Humpback whale	*Megaptera novaeangliae*	Mexico	FT; MMPA	Individuals present year-round with higher seasonal presence during the summer migrations from Mexico and Central America.[5, 6, 7]
		Central America	FE; MMPA	
Killer whale	*Orcinus orca*	Southern Resident	FE; MMPA	Occasionally present offshore of Central and Southern California.[8, 9]
Sei whale	*Balaenoptera borealis*	-	FE; MMPA	Present year round with more likely presence in the winter and spring.[10]
Sperm whale	*Physeter macrocephalus*	-	FE; MMPA	Present year round with a preference for deep waters and the continental shelf break and slope.[11]
Steller sea lion	*Eumetopias jubatus*	-	MMPA	Present in California coastal waters and haulouts within the noise footprint on VSFB and the NCI.[12]
Northern elephant seal	*Mirounga angustirostris*	-	MMPA	Present in California coastal waters and haulouts within the noise footprint on VSFB and the NCI.[12]
Pacific harbor seal	*Phoca vitulina richardii*	-	MMPA	Present in California coastal waters and haulouts within the noise footprint on VSFB, the NCI, and the south coast of Santa Barbara and Ventura Counties.[12]

Common Name	Scientific Name	DPS or ESU	Federal Status	Presence in Action Area
California sea lion	*Zalophus californianus*	-	MMPA	Present in California coastal waters and haulouts within the noise footprint on VSFB and the NCI.[12]
Guadalupe fur seal	*Arctocephalus townsendi*	-	FT; MMPA	Present in California coastal waters and haulouts within the noise footprint on the NCI.[12]
Southern sea otter	*Enhydra lutris nereis*	-	FT; MMPA	Present along coast of California from Santa Barbara County and north.[13]

Notes: ESU = Evolutionarily Significant Unit; DPS = Distinct Population Segment; FE = federally endangered; FT = federally threatened; NCI = Northern Channel Islands
Sources:

[1] Becker, E.A., K.A. Forney, P.C. Fiedler, J. Barlow, S.J. Chivers, C.A. Edwards, A.M. Moore, and J.V. Redfern. 2016. Moving Towards Dynamic Ocean Management: How Well Do Modeled Ocean Products Predict Species Distributions? Remote Sensing 8(2): 149.

[2] Mizroch, S.A., D.W. Rice, D. Zwiefelhofer, J.M. Waite, and W.L. Perryman. 2009. Distribution and movements of fin whales in the North Pacific Ocean. Mammal Review 39(3): 193–227.

[3] Jefferson, T.A., M.A. Webber, and R.L. Pitman. 2008. Marine Mammals of the World: A Comprehensive Guide to Their Identification. London, United Kingdom: Elsevier.

[4] Jones, M.L., and S.L. Swartz. 2009. Gray whale, *Eschrichtius robustus*. In W. F. Perrin, B. Wursig, & J. G. M. Thewissen (Eds.), Encyclopedia of Marine Mammals (2nd ed., pp. 503–511). Cambridge, MA: Academic Press.

[5] Dohl, T.P., R.C. Guess, M.L. Duman, and R.C. Helm. 1983. Cetaceans of Central and Northern California, 1980-1983: Status, Abundance, and Distribution (OCS Study MMS 84–005). Los Angeles, CA: U.S. Department of the Interior, Minerals Management Service, Pacific Outer Continental Shelf Region.

[6] Forney, K.A., and J. Barlow. 1998. Seasonal patterns in the abundance and distribution of California cetaceans, 1991–1992. Marine Mammal Science 14(3): 460–489.

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[8] Hanson, M.B., E.J. Ward, C.K. Emmons, and M.M. Holt. 2018. Modeling the occurrence of endangered killer whales near a U.S. Navy Training Range in Washington State using satellite-tag locations to improve acoustic detection data. Seattle, WA: National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Northwest Fisheries Science Center.

[9] Hanson, M.B., E.J. Ward, C.K. Emmons, M.M. Holt, and D.M. Holzer. 2017. Assessing the Movements and Occurrence of Southern Resident Killer Whales Relative to the U.S. Navy's Northwest Training Range Complex in the Pacific Northwest. Seattle, WA: National Oceanic and Atmospheric Administration, National Marine Fisheries Service, Northwest Fisheries Science Center.

[10] Smultea, M.A., T.A. Jefferson, and A.M. Zoidis. 2010. Rare sightings of a Bryde's whale (*Balaenoptera edeni*) and Sei whales (*B. borealis*) (Cetacea: Balaenopteridae) northeast of Oahu, Hawaii. Pacific Science 64(3): 449–457.

[11] Smultea, M. 2014. Changes in Relative Occurrence of Cetaceans in the Southern California Bight: A Comparison of Recent Aerial Survey Results with Historical Data Sources. Aquatic Mammals 40(1): 32–43.

[12] National Marine Fisheries Service pinniped count data; Naval Base Ventura County pinniped count data; and various Vandenberg Space Force Base natural resources reports

[13] USGS count data and various Vandenberg Space Force Base natural resources reports

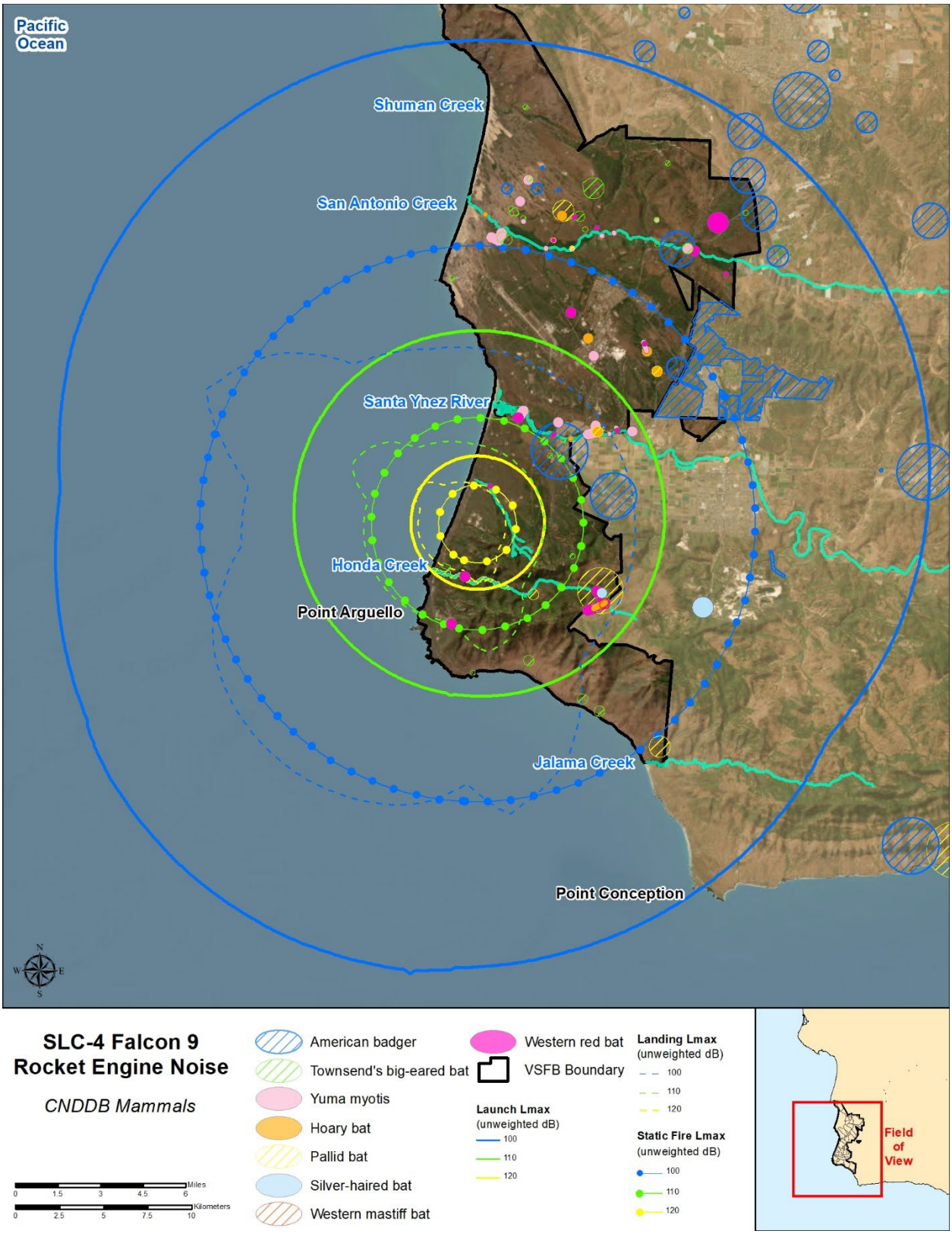

Figure B.0-1. Special status mammal CNDDB localities and Falcon 9 SLC-4 static fire, launch, and landing rocket engine noise model results.

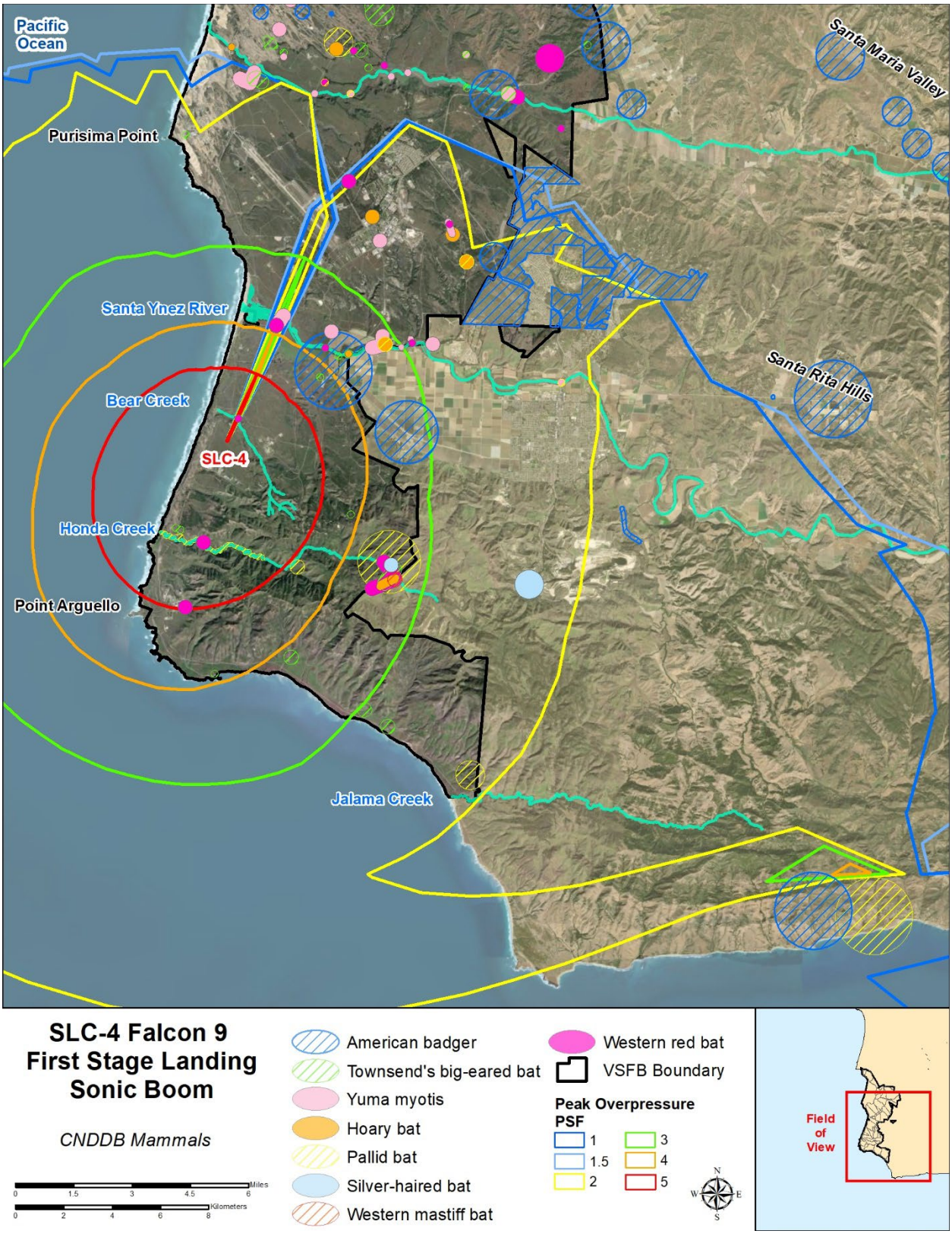

Figure B.0-2. Special status mammal CNDDB localities and example SLC-4 landing sonic boom contours.

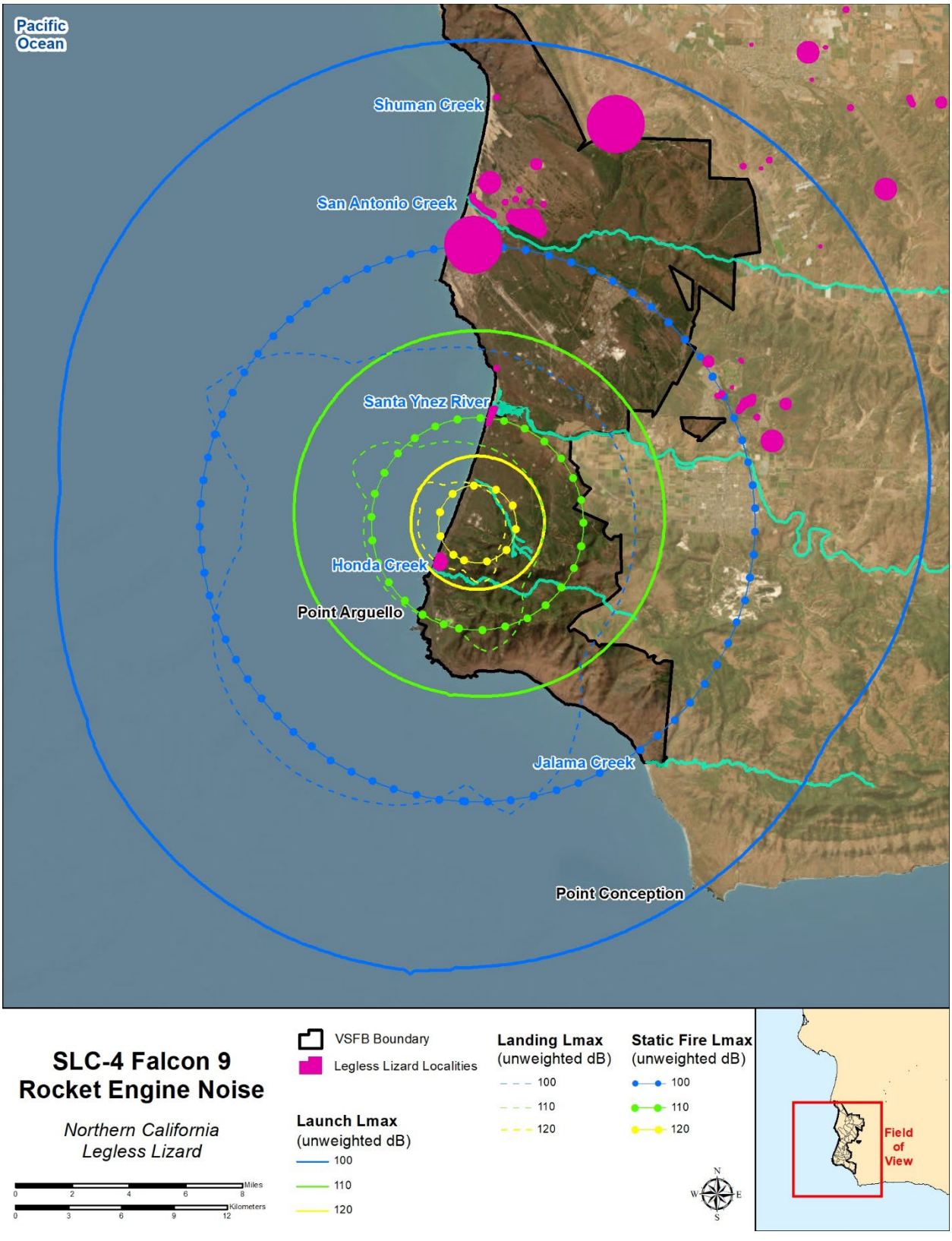

Figure B.0-3. Northern legless lizard localities and Falcon 9 SLC-4 static fire, launch, and landing rocket engine noise model results.

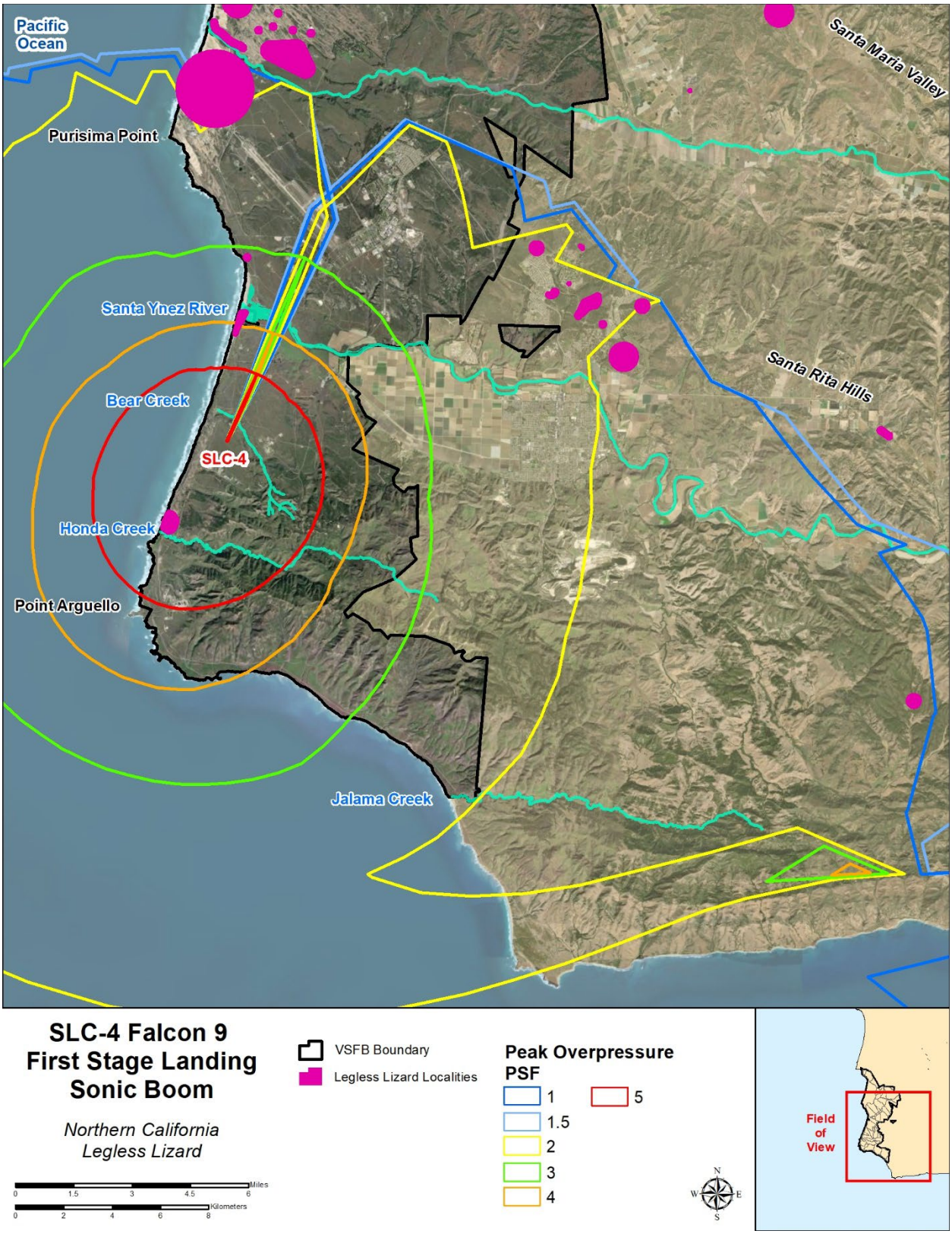

Figure B.0-4. Northern legless localities and example SLC-4 landing sonic boom contours.

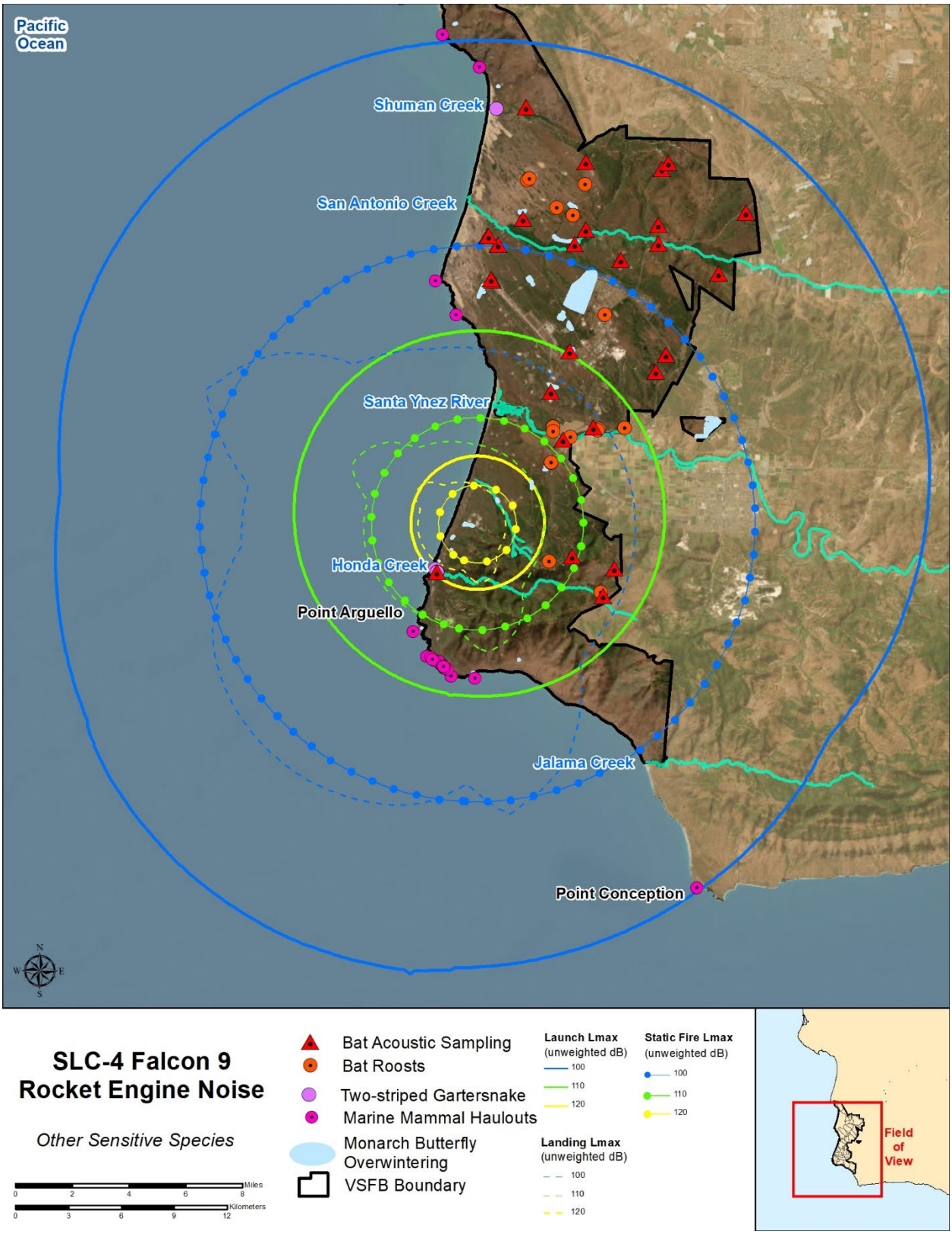

Figure B.0-5. Other sensitive species and Falcon 9 SLC-4 static fire, launch, and landing rocket engine noise model results.

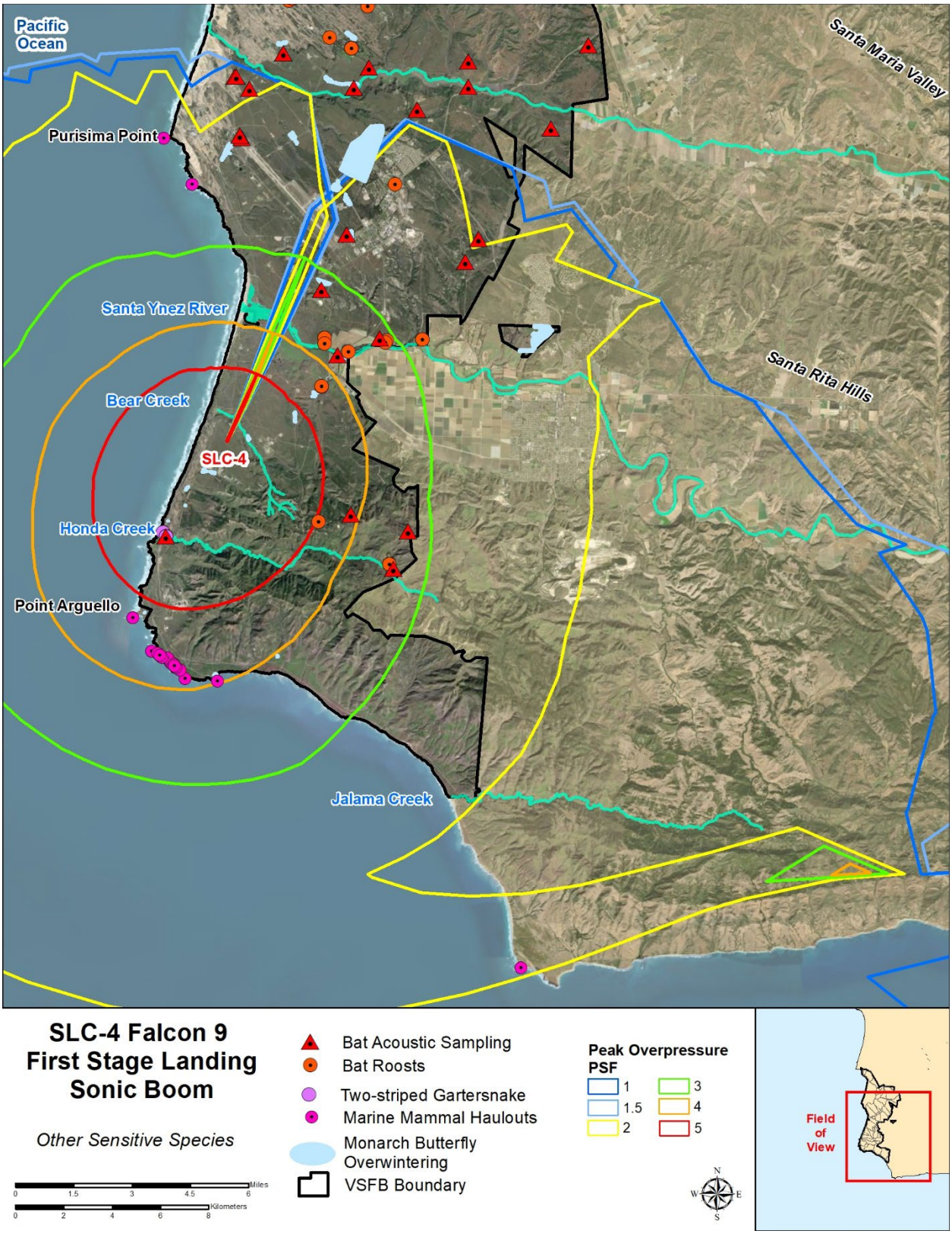

Figure B.0-6. Other sensitive species and example SLC-4 landing sonic boom contours.

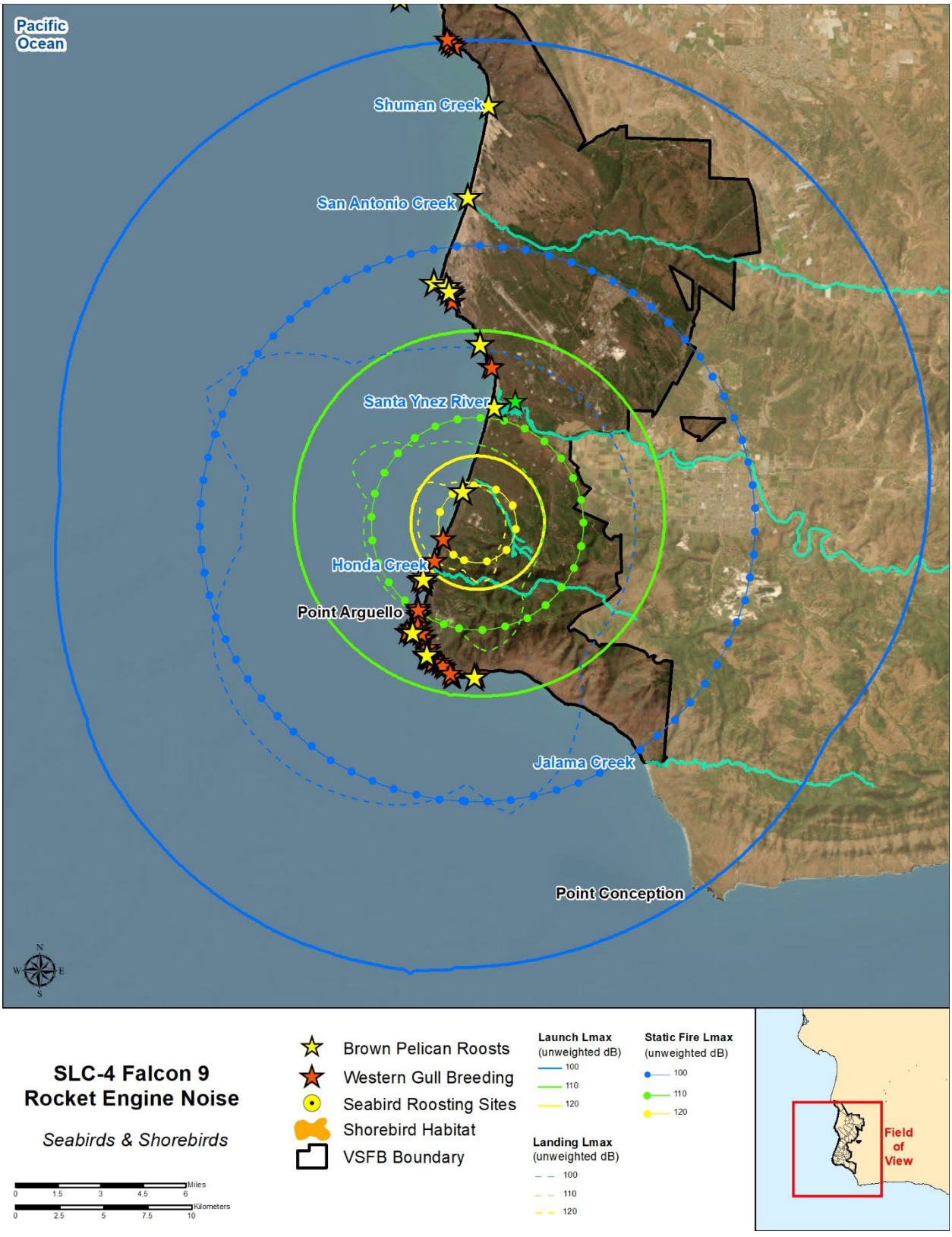

Figure B.0-7. Seabirds, shorebirds, and Falcon 9 SLC-4 static fire, launch, and landing rocket engine noise model results.

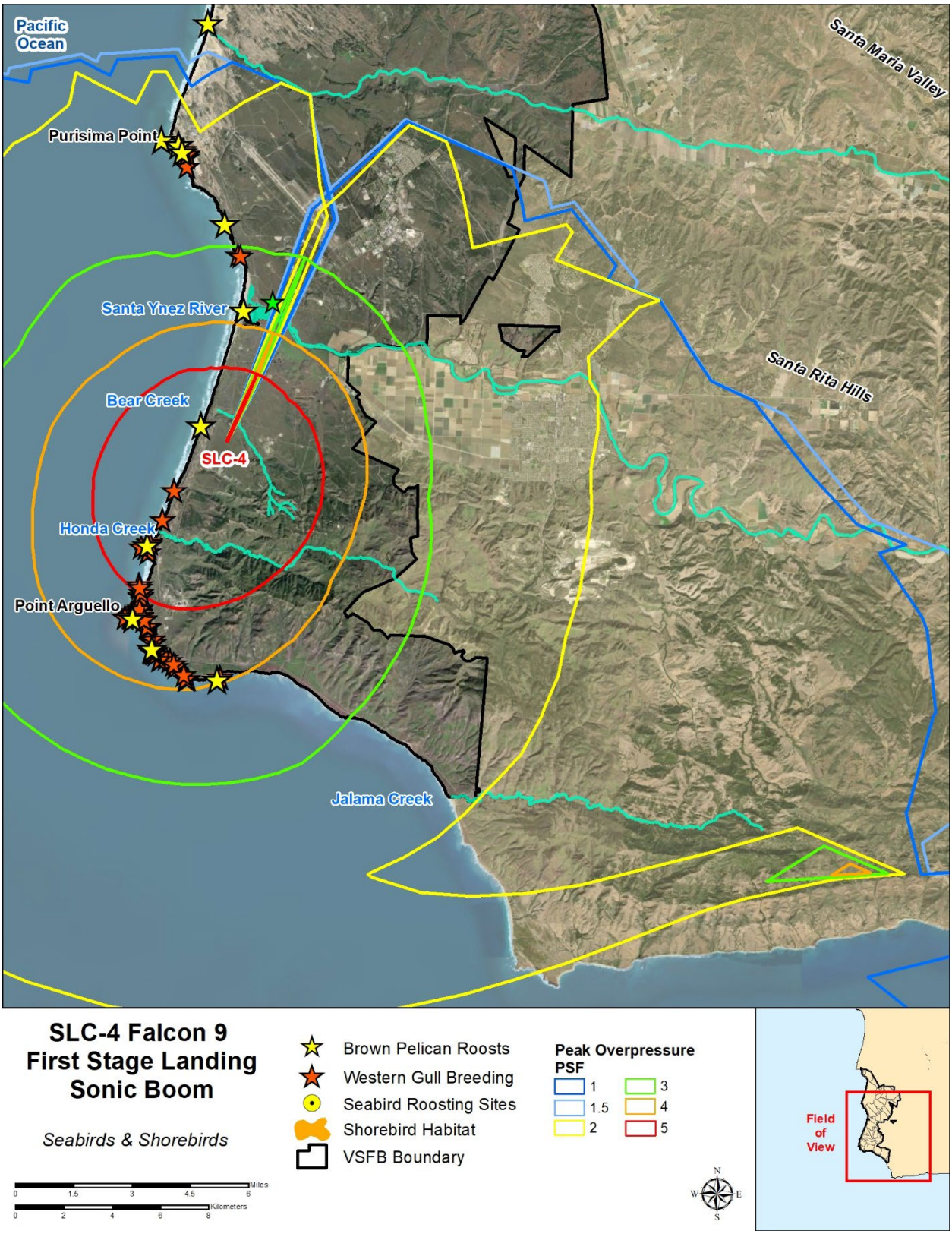

Figure B.0-8. Seabirds, shorebirds, and example SLC-4 landing sonic boom contours.

APPENDIX C – SBC EVACUATION EMAIL NOTIFICATIONS

From: Santa Barbara County Parks Reservations
To: Santa Barbara County Parks Reservations
Subject: IMPORTANT INFORMATION REGARDING YOUR JALAMA BEACH RESERVATION (November 16)

Dear Valued Jalama Beach County Park Visitor,

Vandenberg Space Force Base and SpaceX has scheduled a launch for Thursday, November 16, 2023. The launch window is from 11:38 pm to 3:30 am the early morning of the 17th.

At this time **Jalama Beach is not subject to an evacuation** order due to the estimated number of overnight visitors being below the population threshold set by Space Force Launch Control, Safety Office, and the Federal Aviation Administration (FAA). **However, as the launch date/time approaches, if the estimated population threshold is exceeded, there will be a need to evacuate the campground from 3-hrs prior am/pm on November 16th until an all-clear status is issued by Space Force**.

While we **do not** anticipate the need to evacuate the campground at this time, please note the following:

- If an evacuation order is issued you will be notified in a subsequent email and all campers will be evacuated to the end of Jalama Road on to Highway 1. If you will be in mid-stay, you do not have to break down your campsite, and large camping gear may be left behind; however, we do recommend you take your valuables with you.
- While the campground is not currently subject to evacuation, if you do stay overnight in the park, please be advised while highly unlikely, there is a small risk of launch vehicle failure which could cause debris to fall on the campground.
- If you would like to move your check-in date or shorten your stay, depending on availability, please submit a reservation change form by visiting www.sbparks.org/support or contact our Call Center at (805) 568-2460. All changes will be made at no additional charge, and any shortened stays will be partially refunded.
- You may move your stay the evening of the launch to Cachuma Lake Recreation Area, depending on availability, which is approximately 50 miles from Jalama Beach. Please submit a reservation change form by visiting www.sbparks.org/support or contact our Call Center at (805) 568-2460 for availability at Cachuma Lake.
- If you would like to completely cancel the reservation, please submit a reservation change form by visiting www.sbparks.org/support or contact our Call Center (805) 568-2460. You must contact the Call Center by web form or phone to receive a full refund for your cancellation. Remember to disclose the "Jalama Safety Relocation" as the reason for your cancellation. Alternatively, please be advised that cancellations and refund requests initiated through the website will only include the site fee.

Please note that there is always a possibility that the launch may be cancelled or postponed to a later time. Backup dates are November 17th, 18th, and 19th.

We sincerely apologize for any inconvenience this may have caused, and hope this notification will

help you make any necessary adjustments to your plans. Please let us know if you have any questions or concerns regarding this launch, and thank you for camping at Jalama Beach Park.

APPENDIX D – NMFS LETTER OF AUTHORIZATION

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
1315 East-West Highway
Silver Spring, Maryland 20910

DEPARTMENT OF COMMERCE

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

NATIONAL MARINE FISHERIES SERVICE

Letter of Authorization

The U.S. Space Force (USSF), is hereby authorized to take marine mammals incidental to those activities at Vandenberg Space Force Base (VSFB), California, in accordance with 50 CFR 217, Subpart G--Taking Marine Mammals Incidental to U.S. Space Force Launches and Operations at Vandenberg Space Force Base (VSFB), California subject to the provisions of the Marine Mammal Protection Act (16 U.S.C. 1361 *et seq.*; MMPA) and the following conditions:

1. This Letter of Authorization (LOA) is valid April 10, 2024, through April 9, 2029.

2. This Authorization is valid only for the unintentional taking of the species and stocks of marine mammals identified in Condition 4 incidental to rocket and missile launches and supporting operations originating at VSFB.

3. This Authorization is valid only if USSF or any person(s) operating under its authority implements the mitigation, monitoring, and reporting required pursuant to 50 CFR §§ 217.64 and 217.65 and implements the Terms and Conditions of this Authorization.

4. General Conditions

   (a) A copy of this LOA must be in the possession of USSF, its designees, and personnel operating under the authority of this LOA.

   (b) The incidental take of marine mammals under the activities identified in Condition 2 and 50 CFR § 217.60 of the regulations, by Level B harassment only, is limited to the species and stocks and number of takes shown in Table 1.

Species	**Stock**	**Annual Take by Level B harassment**	**5-Year Total Take by Level B harassment**
Harbor seal	California	11,135	38,591
California sea lion	United States	84,870	281,021
Northern elephant seal	California Breeding	9,438	29,590
Steller sea lion	Eastern	550	1,900
Northern fur seal	California	5,909	18,383
Guadalupe fur seal	Mexico	23	71

(c) The taking by injury (Level A harassment), serious injury, or death of any of the species listed in condition 3(b) of the Authorization or any taking of any other species of marine mammal is prohibited and may result in the modification, suspension, or revocation of this LOA.

5. Mitigation

USSF, and any persons operating under its authority, must implement the following mitigation measures when conducting the activities identified in Condition 2 of this Authorization.

(a) USSF must provide pupping information to launch proponents at the earliest possible stage in the launch planning process and direct launch proponents to, if practicable, avoid scheduling launches during pupping seasons on VSFB from 1 March to 30 April and on the Northern Channel Islands from 1 June- 31 July. If practicable, rocket launches predicted to produce a sonic boom on the Northern Channel Islands >3 pounds per square foot (psf) from 1 June – 31 July will be scheduled to coincide with tides in excess of +1.0 ft (0.3 m), with an objective to do so at least 50 percent of the time.

(b) For manned flight operations, aircraft must use approved routes for testing and evaluation. Manned aircraft must also remain outside of a 1,000-ft (305 m) buffer around pinniped rookeries and haul-out sites (except in emergencies such as law enforcement response or Search and Rescue operations, and with a reduced, 500-ft (152 m) buffer at Small Haul-out 1).

(c) UAS classes 0-2 must maintain a minimum altitude of 300 ft (91 m) over all known marine mammal haulouts when marine mammals are present, except at take-off and landing. Class 3 must maintain a minimum altitude of 500 ft (152 m), except at take-off and landing. UAS classes 4 and 5 only operate from the VSFB airfield and must maintain a minimum altitude of 1,000 ft (305 m) over marine mammal haulouts except at take-off and landing. USSF must not fly class 4 or 5 UAS below 1,000 ft (305 m) over haulouts.

6. Monitoring

USSF is required to conduct marine mammal and acoustic monitoring as described below:

(a) Monitoring at VSFB and NCI must be conducted by at least one NMFS-approved Protected Species Observer (PSO) trained in marine mammal science. PSOs must have demonstrated proficiency in the identification of all age and sex classes of all marine mammal species that occur at VSFB and on NCI. They must be knowledgeable of approved count methodology and have experience in observing pinniped behavior, especially that due to human disturbances.

(b) In the event that the PSO requirements described in paragraph (a) of this section cannot be met (*e.g.*, access is prohibited due to safety concerns), daylight or nighttime video monitoring must be used in lieu of PSO monitoring. In certain circumstances where the daylight or nighttime video monitoring is also not possible (*e.g.*, USSF is unable to access a monitoring site due to road conditions or human safety concerns), USSF must notify NMFS.

(c) At VSFB, USSF must conduct marine mammal monitoring and take acoustic measurements for all new rockets, for rockets (existing and new) launched from new facilities, and for larger or louder rockets (including those with new launch proponents) than those that have been previously launched from VSFB during their first three launches and for the first three launches from any new facilities during March through July.

i. For launches that occur during the harbor seal pupping season (March 1 through June 30) or when higher numbers of California sea lions are present (June 1 through July 31), monitoring must be conducted. At least one NMFS-approved PSO trained in marine mammal science must conduct the monitoring.

ii. When launch monitoring is required, monitoring must begin at least 72 hours prior to the launch and continue through at least 48 hours after the launch. Monitoring must include multiple surveys each day, with a minimum of four surveys per day.

iii. For launches within the harbor seal pupping season, USSF must conduct a follow-up survey of pups.

iv. For launches that occur during daylight, USSF must make time-lapse video recordings to capture the reactions of pinnipeds to each launch. For launches that occur at night, USSF must employ night video monitoring, when feasible.

v. When possible, PSOs must record: species, number, general behavior, presence and number of pups, age class, gender, and reaction to launch noise, or to natural or other human-caused disturbances. PSOs must also record environmental conditions, including visibility, air temperature, clouds, wind speed and direction, tides, and swell height and direction.

(d) USSF must conduct sonic boom modeling prior to the first three small or medium rocket launches from new launch proponents or at new launch facilities, and all heavy or super-heavy rocket launches.

(e) USSF must conduct marine mammal monitoring and take acoustic measurements at the NCI if the sonic boom model indicates that pressures from a boom will reach or exceed 7 psf from 1 January through 28 February, 5 psf from 1 March through 31

July, or 7 psf from 1 August through 30 September. No monitoring is required on NCI from 1 October through 31 December.

i. The monitoring site must be selected based upon the model results, prioritizing a significant haulout site on one of the islands where the maximum sound pressures are expected to occur.

ii. USSF must estimate the number of animals on the monitored beach and record their reactions to the launch noise and conduct more focused monitoring on a smaller subset or focal group.

iii. Monitoring must commence at least 72 hours prior to the launch, during the launch and at least 48 hours after the launch, unless no sonic boom is detected by the monitors and/or by the acoustic recording equipment, at which time monitoring may be stopped.

iv. For launches that occur in darkness, USSF must use night vision equipment.

v. Monitoring for each launch must include multiple surveys each day that record, when possible: species, number, general behavior, presence of pups, age class, gender, and reaction to sonic booms or natural or human-caused disturbances.

vi. USSF must collect photo and/or video recordings for daylight launches when feasible, and if the launch occurs in darkness night vision equipment will be used.

vii. USSF must record environmental conditions, including visibility, air temperature, clouds, wind speed and direction, tides, and swell height and direction.

(f) USSF must continue to test equipment and emerging technologies, including but not limited to night vision cameras, newer models of remote video cameras and other means of remote monitoring at both VSFB and on the NCI.

(g) USSF must evaluate UAS based or space-based technologies that become available for suitability, practicability, and for any advantage that remote sensing may provide to existing monitoring approaches.

(h) USSF must monitor marine mammals during the first three launches of the missiles for the new Ground Based Strategic Defense program during the months of March through July across the 5-year duration of this LOA.

i. When launch monitoring is required, monitoring must include multiple surveys each day, with a minimum of four surveys per day.

ii. When possible, PSOs must record: species, number, general behavior, presence and number of pups, age class, gender, and reaction to launch noise, or to natural or other human-caused disturbances. PSOs must also record environmental conditions, including visibility, air temperature, clouds, wind speed and direction, tides, and swell height and direction.

(i) USSF must conduct semi-monthly surveys (two surveys per month) to monitor the abundance, distribution, and status of pinnipeds at VSFB. Whenever possible, these surveys will be timed to coincide with the lowest afternoon tides of each month when the greatest numbers of animals are usually hauled out. If a VSFB or area closure precludes monitoring on a given day, USSF must monitor on the next best day.

i. PSOs must gather the following data at each site: species, number, general behavior, presence and number of pups, age class, gender, and any reactions to natural or human-caused disturbances. PSOs must also record environmental conditions, including visibility, air temperature, clouds, wind speed and direction, tides, and swell height and direction.

7. Reporting

(a) USSF must submit an annual report each year to NMFS Office of Protected Resources and West Coast Region on March 1st of each year that describes all activities and monitoring for the specified activities during that year. This includes launch monitoring information in Condition 7(a)(i) through (iii) for each launch where monitoring is required or conducted. The annual reports must also include a summary of the documented numbers of instances of harassment incidental to the specified activities, including non-launch activities (*e.g.*, takes incidental to aircraft or helicopter operations observed during the semi-monthly surveys). Annual reports must also include the results of the semi-monthly sentinel marine mammal monitoring described in Condition 6(i), results of tests of equipment and emerging technologies described in condition 6(f), and results of evaluation of UAS based or space-based technologies described in condition 6(g).

i. Launch information, including:

1) Date(s) and time(s) of the launch (and sonic boom, if applicable);

2) Number(s), type(s), and location(s) of rockets or missiles launched;

ii. Monitoring program design; and

iii. Results of the launch-specific monitoring program, including:

1) Date(s) and location(s) of marine mammal monitoring;

2) Number of animals observed, by species, on the haulout prior to commencement of the launch or recovery;

3) General behavior and, if possible, age (including presence and number of pups) and sex class of pinnipeds hauled out prior to the launch or recovery;

4) Number of animals, by species, age, and sex class that responded at a level indicative of harassment. Harassment is characterized by:

A. Movements in response to the source of disturbance, ranging from short withdrawals at least twice the animal's body length to longer retreats over the beach, or if already moving a change of direction of greater than 90 degrees; or

B. All retreats (flushes) to the water.

5) Number of animals, by species, age, and sex class that entered the water, the length of time the animal(s) remained off the haulout, and any behavioral responses by pinnipeds that were likely in response to the specified activities, including in response to launch noise or a sonic boom;

6) Environmental conditions including visibility, air temperature, clouds, wind speed and direction, tides, and swell height and direction; and

7) Results of acoustic monitoring, including the following:

A. Recorded sound levels associated with the launch (in SEL, SPL_{peak}, and SPL_{rms});

B. Recorded sound levels associated with the sonic boom (if applicable), in psf; and

C. The estimated distance of the recorder to the launch site and the distance of the closest animals to the launch site.

iv. Results of the semi-monthly sentinel marine mammal monitoring described in Condition 6(i), including:

1) Number of animals observed, by species;

2) General behavior and, if possible, age (including presence and number of pups) and sex class of pinnipeds hauled out;

3) Any reactions to natural or human-caused disturbances;

4) Environmental conditions including visibility, air temperature, clouds, wind speed and direction, tides, and swell height and direction.

(b) USSF must submit a final, comprehensive 5-year report to NMFS Office of Protected Resources within 90 days of the expiration of this LOA. This report must:

i. Summarize the activities undertaken and the results reported in all annual reports;

ii. Assess the impacts at each of the major rookeries; and

iii. Assess the cumulative impacts on pinnipeds and other marine mammals from the activities specified in Condition 2.

(c) If the activity identified in Condition 2 likely resulted in the take of marine mammals not identified in Condition 4(b), then the USSF must notify the NMFS Office of Protected Resources and the NMFS West Coast Region stranding coordinator within 24 hours of the discovery of the take.

(d) In the event that personnel involved in the activities discover an injured or dead marine mammal, USSF must report the incident to the Office of Protected Resources (OPR), NMFS (PR.ITP.MonitoringReports@noaa.gov and itp.davis@noaa.gov) and to the West Coast regional stranding network (866-767-6114) as soon as feasible.

The report must include the following information:

i. Time, date, and location (latitude/longitude) of the first discovery (and updated location information if known and applicable);

ii. Species identification (if known) or description of the animal(s) involved;

iii. Condition of the animal(s) (including carcass condition if the animal is dead);

iv. Observed behaviors of the animal(s), if alive;

v. If available, photographs or video footage of the animal(s); and

vi. General circumstances under which the animal was discovered.

(e) If real-time monitoring during a launch shows that the activity identified in Condition 2 is reasonably likely to have resulted in the mortality or injury of any marine mammal, USSF must notify NMFS within 24 hours (or next business day). NMFS and USSF must then jointly review the launch procedure and the mitigation

requirements and make appropriate changes through the adaptive management process, as necessary and before any subsequent launches of rockets and missiles with similar or greater sound fields and/or sonic boom pressure levels.

8. This Authorization may be modified, suspended or withdrawn if USSF fails to abide by the conditions prescribed herein or if the authorized taking is having more than a negligible impact on the species or stock of affected marine mammals.

9. Renewals and Modifications of Letter of Authorization

(a) A LOA issued under 50 CFR §§ 216.106 and § 217.66 for the activity identified in Condition 2 of this Authorization and 50 CFR § 217.60(a) and (b) shall be modified upon request by USSF, provided that:

i. The specified activity and mitigation, monitoring, and reporting measures, as well as the anticipated impacts, are the same as those described and analyzed for this subpart (excluding changes made pursuant to the adaptive management provision in paragraph (c) of this section); and

ii. NMFS determines that the mitigation, monitoring, and reporting measures required by the previous LOA under these regulations were implemented.

(b) For LOA modification or renewal requests by the applicant that include changes to the activity or the mitigation, monitoring, or reporting measures (excluding changes made pursuant to the adaptive management provision in paragraph (c) of this section) that do not change the findings made for the regulations or that result in no more than a minor change in the total estimated number of takes (or distribution by species or stock or years), NMFS may publish a notice of proposed changes to the LOA in the *Federal Register*, including the associated analysis of the change, and solicit public comment before issuing the LOA.

(c) An LOA issued under 50 CFR §§ 216.106 and 217.66 for the activity identified in Condition 2 of this Authorization and 50 CFR § 217.60(a) and (b) may be modified by NMFS under the following circumstances:

i. After consulting with the USSF regarding the practicability of the modifications, NMFS, through adaptive management, may modify (including adding or removing measures) the existing mitigation, monitoring, or reporting measures if doing so creates a reasonable likelihood of more effectively accomplishing the goals of the mitigation and monitoring.

ii. Possible sources of data that could contribute to the decision to modify the mitigation, monitoring, or reporting measures in an LOA include:

1) Results from the USSF's monitoring from the previous year(s);

2) Results from other marine mammal and/or sound research or studies; or

3) Any information that reveals marine mammals may have been taken in a manner, extent or number not authorized by these regulations or a subsequent LOA.

iii. If, through adaptive management, the modifications to the mitigation, monitoring, or reporting measures are more than minor, NMFS will publish a notice of the proposed changes to the LOA in the *Federal Register* and solicit public comment.

(d) If NMFS determines that an emergency exists that poses a significant risk to the well-being of the species or stocks of marine mammals specified in the regulations and this Authorization, an LOA may be modified without prior notice or opportunity for public comment. Notice would be published in the *Federal Register* within 30 days of the action.

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For Kimberly Damon-Randall, Director
Office of Protected Resources