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STAFF REPORT: REGULAR CALENDAR

Consistency Determination No. **CD-0002-25**

Applicants: Federal Aviation Administration (FAA) and National Aeronautics and Space Administration (NASA)

Location: Pacific Ocean

Project Description: Landing Space Exploration Technology Corporation's (SpaceX) Dragon spacecraft capsule up to 10 times annually in the Pacific Ocean, approximately 12 miles offshore of southern California

Staff Recommendation: Concurrence

SUMMARY OF STAFF RECOMMENDATION

The Federal Aviation Administration (FAA) and the National Aeronautics and Space Administration (NASA) have submitted a consistency determination (CD) for landing Space Exploration Technology Corporation's (SpaceX) Dragon capsule capsule in the Pacific Ocean, approximately 12 miles offshore of Los Angeles, Orange and San Diego Counties, up to ten times per year. Dragon capsule reentries and recoveries would occur outside of California state waters (which extend three nautical miles from shore) while portions of the transport activities to and from the Port of Long Beach would occur within California waters.

SpaceX developed the Dragon capsule to deliver mission critical cargo, food, supplies, experiments and astronauts to the International Space Station (ISS) and low-Earth orbit. The capsule is attached to a SpaceX Falcon launch vehicle and launched from the Kennedy Space Center and Cape Canaveral Space Station in Florida. After completing each mission, the Dragon capsule would execute a deorbit burn and re-enter Earth's atmosphere. Prior to splashdown of the capsule at least 12 miles offshore of southern California, a 160-foot-long recovery vessel would be deployed from the Port of Long Beach to recover it. After assessing the capsule's condition, the recovery vessel would lift it out of the water and place it on the deck of the ship's deck. The recovery vessel would then transport the capsule to the Port of Long Beach where it would be offloaded and transported to an inland SpaceX facility for further post-flight processing.

During reentry, the roughly 13-foot diameter trunk portion of the capsule would be jettisoned in the upper atmosphere and is expected to fully burn up. Any limited material that remains after burnup and reentry would splashdown into the Pacific Ocean approximately 115 to 500 nautical miles from shore, as shown in **Exhibit 3**. The remainder of the capsule is insulated to avoid burnup and would use two drogue parachutes and four main parachutes to slow its descent speed during reentry so that it achieves splashdown in the ocean. During descent, the capsule would jettison several aluminum and carbon fiber panels in order to release the parachutes and these panels would also land in the open ocean. SpaceX would attempt to recover Dragon's parachutes and panels. However, if recovery is unsuccessful, FAA and NASA state in the project consistency determination that the parachutes and panels are expected to sink.

Although unlikely – due to expected burnup of the trunk materials and recovery efforts for the parachutes and panels – project activities may result in the release of marine debris into offshore waters. However, the landing locations for limited trunk materials that survive reentry would be approximately 115 to 500 miles offshore and for panels and parachutes over 12 miles from shore. This significantly reduces the potential for such materials to enter California state waters or affect California coastal resources.

Reentry of the capsule would also create sonic booms, with the strongest modeled sonic booms expected to occur over the open ocean with a maximum anticipated overpressure of 2.2 pounds per square foot (psf). None of the sonic booms are anticipated to occur over land. The intensity of sonic booms from the capsule would be much lower than the sonic booms generated by the launches and landings of the SpaceX Falcon 9 rocket (Consistency Determination No. CD-0003-24) at Vandenberg Space Force Base (VSFB), in Santa Barbara County, and would be completely over the open ocean in the Southern California Bight. Based on the offshore location away from all land and islands, as well as the reduction in sound and pressure wave intensity resulting from movement through the air/water interface, it is unlikely that marine life would be exposed to sonic booms, particularly at levels that may result in disturbance. Additionally, the proposed project is limited to a total of ten capsule splashdown/reentries per year over an area of ocean that is not currently affected by sonic booms from launches and landings of the Falcon 9 from VSFB. This limits the potential for cumulative effects or repeat disturbance of marine life.

Therefore, Commission staff recommends that the Commission **concur** with DAF consistency determination No. CD-0002-25 and find that the proposed project is consistent with the enforceable policies of the California Coastal Management Program. The motion is on **page 5**.

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I. FEDERAL AGENCY'S CONSISTENCY DETERMINATION

The Federal Aviation Administration (FAA) and the National Aeronautics and Space Administration (NASA) have determined the project is consistent to the maximum extent practicable with the enforceable policies of the California Coastal Management Program (CCMP).

II. MOTION AND RESOLUTION

Motion:

> I move that the Commission **concur** with Consistency Determination CD-0002-25 on the grounds that the project described therein would be fully consistent, and thus consistent to the maximum extent practicable, with the enforceable policies of the CCMP.

Staff recommends a **YES** vote on the forgoing motion. Passage of this motion will result in a concurrence with the determination of consistency and adoption of the following resolution and findings. An affirmative vote of a majority of the Commissioners present is required to pass the motion.

Resolution:

> The Commission hereby **concurs** with Consistency Determination CD-0002-25 on the grounds that the project is fully consistent, and thus consistent to the maximum extent practicable, with the enforceable policies of the CCMP.

III. APPLICABLE LEGAL AUTHORITIES

A. STANDARD OF REVIEW

The standard of review for federal consistency determinations is the policies of Chapter 3 of the Coastal Act.

B. CONSISTENT TO THE MAXIMUM EXTENT PRACTICABLE

The federal Coastal Zone Management Act ("CZMA"), 16 U.S.C. § 1451-1464, requires that federal agency activities affecting coastal resources be "carried out in a manner which is consistent to the maximum extent practicable with the enforceable policies of approved State management programs." Id. at § 1456(c)(1)(A). The implementing regulations for the CZMA ("federal consistency regulations"), at 15 C.F.R. § 930.32(a)(1), define the phrase "consistent to the maximum extent practicable" to mean:

> ...fully consistent with the enforceable policies of the management programs unless a full consistency is prohibited by existing law applicable to the Federal agency.

This standard allows a federal activity that is not fully consistent with California's Coastal Management Program ("CCMP") to proceed, if full compliance with the CCMP would be "prohibited by existing law." In its consistency determination, FAA and NASA did not argue that full consistency is prohibited by existing law or provide any documentation to support a "maximum extent practicable" argument. Therefore, there is no basis to conclude that existing law applicable to the Federal agency prohibits full consistency. Since the FAA and NASA have raised no issue of practicability, as so defined, the standard before the Commission is full consistency with the enforceable policies of the CCMP, which are the policies of Chapter 3 of the Coastal Act (Cal. Pub. Res. Code §§ 30200-30265.5).

The Commission also has the ability under the federal consistency regulations to re-open this consistency determination should the proposed federal activity have effects on any coastal use or resources substantially different from those originally described in FAA and NASA's consistency determination. Should this scenario occur, the Commission's finding that the project is "fully consistent" with the enforceable policies of the CCMP could be re-examined in light of new circumstances.

C. Federal Lands Excluded from the Coastal Zone

Under the federal CZMA, the Commission is authorized to review federal agency activities and actions that occur within or outside of California's coastal zone and that affect any land or water use or natural resource of the coastal zone. In cases such as this where a proposed project that is being reviewed under the Commission's federal consistency authority is to be partially located in federal waters (i.e., in the Pacific Ocean outside of California State Waters), the Commission's review of that portion of the project is limited to evaluating whether the activities will result in effects that extend outside of the federal area property and will "spill over" into the coastal zone. For example, sonic booms from reentry of the Dragon capsule potentially resulting in adverse impacts to sensitive marine mammals and sea turtles. Since some of these species are known to inhabit both federal and state waters, the loss and disturbance of these species in federal waters can imperil the survival and health of those same species outside of federal waters within the Coastal Zone. As such, the Commission has the authority to review federal agency activities in federal waters, albeit in a somewhat different manner than the Commission's typical review of development activities under the California Coastal Act.

IV. FINDINGS AND DECLARATIONS

A. Project Description

The Federal Aviation Administration (FAA) and the National Aeronautics and Space Administration (NASA) have jointly submitted a consistency determination (CD) to allow Space Exploration Technology Corporation's (SpaceX) Dragon capsule to land in the Pacific Ocean up to ten times per year. NASA has contracted with SpaceX to perform

all future Dragon capsule launches and landing activities on its behalf in the exercise of its statutory responsibilities to jointly manage the International Space Station (ISS). Dragon capsule reentries and recoveries would occur outside of California jurisdictional waters while portions of the transport activities to and from the Port of Long Beach would occur within California jurisdictional waters. The Dragon capsule is described in the CD submittal as follows:

> SpaceX developed Dragon to deliver mission critical cargo, food, supplies, experiments, and astronauts to the International Space Station (ISS) and low-Earth orbit…Dragon is currently America's only spacecraft certified to transport astronauts to and from the ISS. In addition, Dragon is proposed to boost the ISS to a higher stable orbit to avoid a potentially catastrophic unplanned ISS reentry scenario. NASA has used Dragon for cargo missions since 2012 and for crewed missions since 2020. Dragon is launched from Kennedy Space Center and Cape Canaveral Space Force Station in Florida on SpaceX Falcon launch vehicles. Dragon currently reenters Earth's atmosphere and lands in the Gulf of Mexico and Atlantic Ocean.

Between 2010 and 2020 a total of 22 Dragon reentry and recovery options occurred in the Pacific Ocean[1]. Recovery vessels for these Pacific operations were based out of the Port of Long Beach. The last Dragon reentry and recovery in the Pacific was in 2020, and since then Dragon reentry and recovery options have been occurring in the Atlantic Ocean and the Gulf of Mexico.

Dragon capsule

The Dragon capsule is described in the CD as follows:

> Dragon weighs approximately 18,000 pounds without cargo and is approximately 17 feet tall with a base width of 13 feet. Dragon is comprised of two main elements: the capsule for pressurized crew and cargo, and the unpressurized cargo module or "trunk." Dragon's propulsion system consists of a reaction control system and the integrated launch abort system.

An example of the Dragon capsule as seen from the ISS is included in Figure 1 below.

[1] California Coastal Commission (CCC) staff are actively coordinating with FAA and NASA regarding whether these activities required federal consistency review.

Figure 1



Reentry and Splashdown

After completing its mission, the Dragon capsule would execute a deorbit burn and re-enter Earth's atmosphere. During reentry, the trunk portion of the capsule would be jettisoned, and the trunk is expected to burn up in the atmosphere. Any portions of the trunk that do not burn up would splashdown in the Pacific Ocean approximately 115 to 500 nautical miles from shore, as shown in **Exhibit 3**, and are expected to sink. The remainder of the capsule (i.e., the capsule and deployed parachutes) is anticipated to land in the locations depicted in **Exhibit 1**.

Prior to 2022, it was assumed that the trunk completely burned up during reentry. However, it was discovered that in some situations the trunk does not always completely burn up and portions can land in the ocean. After discovering that the trunk may not completely burn up, FAA and NASA determined that reentries can no longer take place in the Gulf of Mexico or the Atlantic Ocean since reentry trajectories at these locations are required to fly over the continental United States rather than open ocean and any portion of the trunk that does not burn up would present a potential risk for the land areas of the United States. As such, the FAA and NASA are seeking to relocate Dragon capsule reentries back to the Pacific Ocean where any trunk material the survives reentry burnup would land in the ocean rather than onshore.

The Dragon capsule would use two drogue parachutes and four main parachutes to slow its descent speed prior to splashdown. Dragon must jettison several aluminum and carbon fiber panels in order to release the parachutes and these panels would also land in open ocean. SpaceX would attempt to recover Dragon's parachutes and panels. However, if recovery is unsuccessful, FAA and NASA state in their consistency determination that the parachutes and panels are expected to sink. The capsule's propellant storage system is designed to contain any residual propellant, thus preventing release of any propellant into the ocean upon splashdown. There have been no releases of propellent from splashdown of the current iteration of the Dragon capsule, the Dragon-2 capsule, which has been in use since 2019 and would be used for this project.

An example of the Dragon capsule prior to splashdown is included in Figure 2 below.

Figure 2



Capsule Recovery and Transport

Prior to splashdown of the Dragon capsule, a 160-foot-long recovery vessel would be deployed for recovery from Long Beach. The vessel would be positioned a safe distance away from the anticipated splashdown area and would deploy multiple rigid-hulled inflatable boats (RHIBs) to the capsule in order to assess its condition, including checking for any potential leaking fuel vapors and that the spacecraft is floating in an upright and stable position on the ocean surface. After assessing the capsule's condition, the recovery vessel would use an onboard A-Frame to lift the capsule out of the water and place it on the deck of the recovery vessel. Once safely aboard the recovery vessel, the crew would exit the spacecraft.

An example of the recovery vessel is included in Figure 3 below.

Figure 3



After securing Dragon aboard the recovery vessel, the RHIBs would attempt to recover the parachutes and panels. However, recovery may not be possible depending on waves and weather conditions. The recovery vessel would then transport Dragon to the Port of Long Beach where it would be offloaded and transported to a SpaceX facility for further post-flight processing.

Sonic Booms

Exhibit 2 shows modeled sonic boom footprints for the potential reentry locations, with contours of the footprints for different pounds per square foot (psf) thresholds. This figure indicates that the modeled sonic boom impacts are expected to occur in the open ocean with a maximum anticipated overpressure of 2.2 psf. There is potential for lower overpressure levels between 0 and 2.2 psf to extend over larger ocean areas.

B. Other Agency Approvals

United States Fish and Wildlife Service

FAA and NASA are currently consulting with the United States Fish and Wildlife Service (USFWS) under Section 7 of the Endangered Species Act (ESA). FAA and NASA initiated consultation on January 24, 2025 and the status of that consultation is ongoing.

National Marine Fisheries Service

FAA and NASA are also consulting with the National Marine Fisheries Services (NMFS) under Section 7 of the ESA. Previous Dragon reentries (along with other SpaceX space launch and reentry activities) have required a Programmatic Letter of Concurrence (LOC) from NMFS. That LOC was issued on April 14, 2023, and allowed for up to 3 Dragon reentries into the Pacific Ocean. FAA and NASA are in the process of updating the LOC for the proposed project.

Federal Aviation Administration

An FAA license or permit is required for any commercial launch or reentry, or the operation of any commercial launch or reentry site, by U.S. citizens anywhere in the world, or by any individual or entity within the United States. An FAA license or permit is not required for launch or reentry activities carried out by the federal government, such as NASA in this case.

Tribal Outreach and Consultation

The FAA previously prepared environmental assessments (EA) pursuant to the National Environmental Policy Act (NEPA) for Dragon capsule reentry and recovery operations in 2007, 2013, 2018, and 2020. In those analyses, FAA determined that capsule reentry and recovery operations would not significantly impact cultural resources. As such, FAA did not contact Native American Tribes located in California for consultation.

For the proposed project, FAA has stated that it will be preparing a new EA, but that FAA was still early in that process and FAA was unable to provide CCC staff with a draft of the EA prior to submittal of the CD. In the CD submittal, FAA and NASA state that since Dragon reentry and recovery operations do not include construction or ground disturbance, the project does not have any potential for adverse impacts to cultural resources.

As part of its review process for the proposed Dragon reentry and recovery operations, Commission staff reached out to Tribes with potential cultural connection to the project

area. Dragon reentries are anticipated to occur within the offshore areas as depicted in **Exhibit 1.** As such, Commission staff requested consultation with tribes within the area from Southern Ventura County down to the California/Mexico border. As of this date of this staff report, Commission staff have not received any requests for consultation from the Tribes.

C. Coastal Waters and Marine Resources

Section 30230 of the Coastal Act 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.

Section 30231 of the Coastal Act states (in relevant 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…controlling runoff, preventing depletion of ground water supplies and substantial interference with surface waterflow, [and] maintaining natural vegetation buffer areas that protect riparian habitats.

The proposed project has the potential to adversely impact marine resources, including the biological productivity of marine waters and marine areas and species of special biological significance such as marine protected areas, national marine sanctuaries, and marine mammal breeding and haul-out sites, due to marine debris and noise from sonic booms. The proposed project also has the potential to negatively affect water quality in the Pacific Ocean due to the potential release of any residual fuel from Dragon once it splashes down.

Section 30230 of the Coastal Act requires areas and species of special biological significance to be provided with special protection. Section 30231 of the Coastal Act requires development to maintain the biological productivity and quality of coastal waters.

Sonic Booms

As depicted in **Exhibit 2** the Dragon capsule reentry and splashdown would occur within one of five areas located greater than 12 nautical miles (nm) offshore of Southern California. If weather conditions preclude landing at the five identified locations, landing of the Dragon could occur elsewhere within the area identified in **Exhibit 3**.

The proposed project has the potential to adversely affect marine areas and species of special biological significance due to exposure to elevated noise levels and pressure

waves from sonic booms. Sonic booms would be generated as the Dragon capsule vehicle descends towards the ocean and decelerates below the speed of sound. No engine noise would be generated, however, because the vehicle would perform an unpowered entry. Marine mammals are sensitive to sound and are often considered to be indicator species to understand noise impacts on the marine environment. Marine mammals that may be present in the open ocean environment include species of whale such as the Blue Whale (*Balaenoptera musculus*) and the Humpback Whale (*Megaptera novaeangliae*) as well as species of seals like the Harbor Seal (*Phoca vitulina*) and sea lions such as the Steller Sea Lion (*Eumetopias jubatus*). The area anticipated to be affected by sonic booms is also shown in **Exhibit 2**. Since all of the anticipated landing locations would be over the open ocean, sonic booms from the project would not affect any known seal haulout areas. Marine reptiles that may be present in the open ocean environment include Green Turtle (*Chelonia mydas*) and Loggerhead Turtle (*Caretta caretta*).

However, as discussed in detail below, such adverse impacts to these species would not be expected. Although sonic booms can be disruptive or harmful to wildlife and habitats, these effects are proportional to the sonic booms' magnitude/intensity and frequency as well as the activity and life-stage of the exposed animal. As depicted in **Exhibit 2** the sonic boom from reentry is modeled to be between one 1.0 and 2.2 psf. This is much lower than the sonic booms generated by the launches and landings of the SpaceX Falcon 9 rocket (Consistency Determination No. CD-0003-24), and would be completely within open ocean areas. Modeling and acoustic monitoring conducted by the Department of the Air Force (U.S. Space Force) indicates that launches and landings of Falcon 9 rockets at Vendenberg Space Force Base (VSFB) can create sonic booms of up to 7.5 psf, more than triple the level of those predicted to occur as part of the proposed reentries. Based on the offshore location away from all land and islands, as well as the reduction in sound and pressure wave intensity resulting from movement through the air/water interface, it is unlikely that marine life would be exposed to sonic booms, particularly at levels that may result in disturbance. Additionally, and critically, the proposed project is limited to a total of ten capsule splashdown/reentries per year over an area of ocean that is not currently affected by sonic booms from launches and landings of the Flacon 9 from VSFB. This limits the potential for cumulative effects of repeat disturbance of marine life.

With the limited expected number of reentries, the relatively low sonic boom overpressure levels, and limited affected area expected during landings, the project would not adversely impact marine resources, including the biological productivity of marine waters and marine areas and species of special biological significance such as marine protected areas, national marine sanctuaries, and marine mammal breeding and haul-out sites, due to noise from sonic booms.

Capsule Recovery and Transit to Long Beach Harbor

A 160-foot-long vessel would be used to recover the Dragon capsule and this vessel would deploy multiple RHIBs to the capsule in order to assess its condition, including checking for any potential leaking fuel vapors and that the capsule is floating in an

upright and stable position on the ocean surface. After assessing the capsule's condition, the recovery vessel would use an onboard A-Frame to lift the capsule out of the water and place it on the deck of the recovery vessel. Once safely aboard the recovery vessel, the crew would exit the spacecraft. The recovery vessel would then transport the capsule to the Port of Long Beach where it would be offloaded and transported to a SpaceX facility for further post-flight processing.

Water Quality

As described in an Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) prepared for Dragon capsule reentry and recovery operations in the Atlantic Ocean:

> … Dragon could contain up to 20 percent of the maximum propellant load (approximately 300 pounds) of MMH propellant when recovered. MMH is a strong irritant which may damage eyes and cause respiratory tract damage. Repeated exposure to lower concentrations may cause toxic damage to liver and kidneys as well as anemia. In addition, the EPA classifies MMH as a probable human carcinogen. MMH is also flammable and could spontaneously ignite when exposed to an oxidizer.

In the CD submittal, FAA and NASA state that the capsule is designed to retain any residual propellant so that any propellant remaining in the capsule is not expected to be released into the ocean. This system would also prevent the release of any propellant during the recovery vessel's transit from the recovery zone to the Port of Long Beach.

In the event of a leak, the area potentially affected by propellant would be between 2.4 and 9.3 acres, depending on whether the parachutes successfully deploy prior to splashdown or the parachutes do not deploy and the Dragon capsule makes contact with the ocean surface at high speed, respectively. Any propellant that is released would be expected to react with seawater to form nitric and nitrous acid which would then be rapidly dispersed and diluted by seawater. Due to the low potential for leaks and the reaction of the propellant with seawater, the potential leak of any residual propellant from Dragon would not adversely affect water quality of the Pacific Ocean.

Additionally, ocean vessels including ships and boats use various fuels, oil, and lubricants in their operations which, if released have the potential to contaminate and degrade ocean water quality. As described in the CD submittal, all recovery vessels that transit the coastal zone would operate in accordance with the International Convention for the Prevention of Pollution from Ships prohibiting certain discharges of oil, garbage, and other substances via spill prevention and response protocols. As such, vessel operations during reentry recovery and transportation activities would not lead to adverse effects to water quality in the coastal zone.

Marine Mammal Strikes

Injury or mortality to marine mammals and sea turtles could result from collisions with project vessels during marine operations associated with the proposed project. However, the Dragon Recovery Vessel would include marine mammal monitoring

protocols that would help to reduce collision risk. In addition, vessels would operate at limited speeds and adhere to minimum safety distances from marine mammals during transit. With these measures in place, potential adverse effects to marine mammals and sea turtles from collisions with project vessels would be minimized.

Marine Debris

During reentry, the trunk portion of the Dragon capsule would be jettisoned for expected burnup in the atmosphere, but any limited material that remains after burnup and reentry would splashdown into the Pacific Ocean approximately 115 to 500 nautical miles from shore, as shown in **Exhibit 3**. Any potions of the trunk that land in the ocean are expected to sink.

The remainder of the Dragon capsule is insulated to avoid burnup and is anticipated to land in the locations depicted in **Exhibit 1**. The Dragon capsule would use two drogue parachutes and four main parachutes to slow its descent speed during reentry prior to splashdown. During descent, the capsule would need to jettison several aluminum and carbon fiber panels in order to release the parachutes and these panels would also land in open ocean. SpaceX would attempt to recover the capsule's parachutes and panels. However, if recovery is unsuccessful, FAA and NASA state in the project consistency determination that the parachutes and panels are expected to sink.

As such, several elements of the proposed project could result in the release of marine debris. To address potential adverse impacts from marine debris resulting from the trunk, parachutes and panels, FAA and NASA would ensure that SpaceX provides contributions to the California Lost Fishing Gear Recovery Project, with the intention of offsetting the release of unrecoverable debris into state and federal waters.

Although unlikely – due to expected burnup of the trunk materials and recovery efforts for the parachutes and panels – project activities may result in the release of marine debris into offshore waters. However, the landing locations for limited trunk materials that survive reentry would be approximately 115 to 500 miles offshore and for panels and parachutes over 12 miles from shore. This significantly reduces the potential for such materials to enter California state waters or affect California coastal resources.

Conclusion

Dragon capsule reentries and recovery operations have the potential to adversely impact sensitive species within the marine environment in several ways, including loud noises and sonic booms, contamination of ocean water quality, injury or mortality of marine mammals and sea turtles from ship strikes, as well as by the generation of various forms of marine debris.

Coastal Act Section 30230 requires new development to protect, and where feasible enhance, the marine environment. Coastal Act Section 30231 requires the biological productivity and quality of coastal waters appropriate to maintain optimum populations of marine organisms to be maintained and, where feasible, restored.

As described above, because sonic booms associated with capsule reentries would likely occur within concentrated areas of open ocean not currently affected by sonic booms from launches and landings of the Falcon 9 from VSFB, would only occur ten times annually, and would only have a maximum expected overpressure of 2.2psf, sonic booms from the project are not expected to adversely affect marine species. Likewise, the Dragon capsule has been designed with various systems to prevent the release of any residual propellant and even if propellant were released it would react to form less harmful substances which would then dilute. With the avoidance, minimization and protective measures and other commitments to monitor for marine mammals and sea turtles during vessel transport and the low potential for the capsule materials to enter California state waters or affect California's coastal resources; the project would be carried out in a manner which would provide special protection to areas and species of special biological significance and maintain the biological productivity and the quality of coastal waters.

The Commission therefore finds the proposed project consistent with the marine biological resource policies of the CCMP (Coastal Act Sections 30230 and 30231).

D. COMMERCIAL AND RECREATIONAL FISHING

Section 30234.5 of the Coastal Act states:

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

The proposed project has the potential to impact commercial and recreational fishing activities off the coast of Southern California. Coastal Act Section 30234.5 requires that the commercial and recreational importance of fishing be recognized and protected. A map depicting the Dragon capsule splashdown areas is included in **Exhibit 1**. Since Dragon reentries and splashdown are a potential hazard to commercial and recreational fishermen, these activities have the potential to disrupt fishing.

FAA and NASA describe the process for notifying fishermen in the CD as follows:

> Notices to Mariners (NOTMARs) would be published prior to each reentry event advising the maritime community of potential hazard areas as required by FAA regulations. The United States Coast Guard 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. Additionally, the National Geospatial Agency issues NAVAREA warnings to the maritime community, providing additional warning of potentially hazardous operations.

FAA and NASA state in the CD that based on their experience with Dragon capsule reentries in the Atlantic Ocean and the Gulf of Mexico, the NOTMARs typically last an hour or less. Since the project is proposing a total of ten reentries per year, and the disruption to fishing is expected to only be for one hour for each reentry, the project

would only have the potential to affect commercial and recreational fishing for up to ten hours per year. In addition, compared to NOTMARs for other SpaceX activities such as Falcon 9 launches and landings at VSFB, the area of closure for Dragon reentries is significantly smaller and located much farther offshore.

As such, the Commission finds that the potential disruption of commercial and recreational fishing activities for up to ten hours per year would not cause an adverse impact on those fishing activities and, thus, the proposed project is consistent with the commercial and recreational fishing provisions of the Coastal Act, including Section 30234.5.

E. CULTURAL RESOURCES

Section 30244 of the Coastal Act states:

> Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required.

The FAA previously prepared environmental assessments (EA) pursuant to the National Environmental Policy Act (NEPA) for Dragon reentry and recovery operations in 2007, 2013, 2018, and 2020. In those analyses, FAA determined that capsule reentry and recovery operations would significantly impact cultural resources. As such, FAA did not contact Native American Tribes located in California for consultation.

For the proposed project, FAA has stated that it will be preparing a new EA, but that FAA was still early in that process and FAA was unable to provide CCC staff with a draft of the EA prior to submittal of the CD. In the CD submittal, FAA and NASA state that since Dragon reentry and recovery operations do not include construction or ground disturbance, the project does not have any potential for adverse impacts to cultural resources.

As part of its review process for the proposed Dragon reentry and recovery operations, Commission staff reached out to Tribes with potential cultural connection to the project area. Dragon reentries are anticipated to occur within the offshore areas as depicted in **Exhibit 1.** As such, Commission staff requested consultation with tribes within the area from Southern Ventura County down to the California/Mexico border. As of this date of this staff report, Commission staff have not received any requests for consultation from the Tribes.

Since Dragon reentry and recovery operations would occur in federal waters located greater than 3 miles from shore and would be limited to 10 times per year, the project would not result in any adverse impacts to cultural or archaeological resources. Based on these considerations, the Commission finds the proposed project consistent with the cultural and archaeological resources policy of the CCMP (Section 30244 of the Coastal Act).

APPENDIX A – SUBSTANTIVE FILE DOCUMENTS

1. CD-0002-25 Federal Aviation Administration and National Aeronautics and Space Administration, Coastal Zone Management Act Consistency Determination for Dragon Reentry and Recovery in the Pacific Ocean, January 2025.
2. Federal Aviation Administration, Final Environmental Assessment and Finding of No Significant Impact for SpaceX Falcon Launches at Kennedy Space Center and Cape Canaveral Air Force Station, July 2020.