PMC-ND

(1.08.09.13)

U.S. DEPARTMENT OF ENERGY
OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY
NEPA DETERMINATION

RECIPIENT: NREL **STATE:** CO

PROJECT TITLE: NREL-25-004-002 UAS Flights for SURF-WEC Deployment - Waimanalo, HI

Notice of Funding Opportunity Number	Procurement Instrument Number	NEPA Control Number	CID Number
	DE-AC36-08GO28308	NREL-25-004-002	GO28308

Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Policy 451.1), I have made the following determination:

CX, EA, EIS APPENDIX AND NUMBER:
Description:

B3.2 Aviation activities	Aviation activities for survey, monitoring, or security purposes that comply with Federal Aviation Administration regulations.

Rationale for determination:

The U.S. Department of Energy's (DOE) National Laboratory of the Rockies (NLR) is proposing to use uncrewed aircraft systems (UAS) to capture high-definition video and photographs of the Small Underwater Research Flap Wave Energy Converter (SURF-WEC) project located in Waimanalo, Hawaii.

The purpose of the proposed project is to obtain high-definition videography and photography of the lifecycle of the SURF-WEC during key stages of project deployment and operation at the Makai Research Pier. The UAS would also document the Makai Research Pier structure, adjacent research buildings, and surrounding coastal waters as necessary to provide context behind the institution's role in the project activities.

The UAS that would be used for aerial survey is a DOE owned Parrot Ai. Flights would be conducted with a minimum flight crew of two. The minimum essential flight crew is the pilot in command (PIC) and one visual observer.

Following a set flight plan, the UAS would be deployed in the immediate area surrounding the Makai Research Pier facilities. Flights would consist of ascents, descents, hovering, and horizontal travel. The launch and landing areas would be determined by the PIC prior to each flight. Flights would be conducted within the visual line of sight with the UAS. A visual observer would be present to assist the pilot to identify air traffic, ground hazards, birds, and situational awareness.

All flights would be conducted during daylight hours only. The UAS would not operate at wind speeds higher than 22 mph. Flights over water would maintain a safe horizontal and vertical separation from research building located on the pier, personnel, vessels, and equipment. All launch, recovery, and flight activities would occur from and over the pier, and flights would not be conducted over the beach or public shoreline areas. Workers are required to maintain a minimum of 15 feet of separation from the UAS when it is powered on. There are no airspace restrictions in the vicinity of the facility and UAS flights would be allowed to ascend to a maximum of 399 feet above sea level. After completion of each day's activities, the UAS system and any associated equipment would be removed.

U.S. FISH AND WILDLIFE SERVICE (FWS) CONSULTATION
There is multiple federally listed threatened or endangered species under FWS's jurisdiction that could occur in the Project area. DOE determined there would be no effect on the following federally listed seabird species under FWS jurisdiction that may be present in the action area: Wedge-tailed shearwater, Black noddy, Bulwer's petrel, and Red-tailed tropicbird, sooty tern. The UAS flights would be conducted from the Makai Research Pier. Beaches and public shoreline areas would be avoided by the flight crew. Because of this, impacts to seabird species are not anticipated. There is no designated critical habitat for any FWS species in the project area.

GFO communicated its determination to FWS on February 6, 2026. The FWS concurred with this determination on February 24, 2026, saying "Given the flight path of the UAS and that it will stay relatively close to shore, it is unlikely that there will be any major impacts to the breeding colonies on these two offshore islets." NLR was provided with the following Best Management Practices for UAS operation:

• Keep drone speeds slow. Birds react more strongly when the drones are flying fast. For rotary-winged drones, the recommended speed when operating near birds is 10 kilometers/hour.

• If the drone is approaching a bird, try to maintain a horizontal angle of approach rather than vertical.
• Take-off and landing tend to be the most disruptive part of the drone flight. Drone take-off and landing locations should be chosen carefully and be as far away from birds as possible.
• If the drone's speed or altitude needs to be changed during the flight, the drone should be first flown away from the birds in the horizontal plane, then the altitude or speed adjusted.
• Keeping the drones a minimum of 100 meters away from birds, especially areas where the birds are congregated (i.e. a breeding colony on the ground, a communal roosting area in the trees), will eliminate almost all escape/flushing responses from birds. In instances where this buffer distance cannot be maintained to obtain the target data, there are some more specific buffer distances for different species and situations.

A visual observer would be present during all flights to ensure there are no collisions with birds they might encounter. If birds or flocks of birds enter the takeoff area prior to deployment of the UAS, the flight would not occur. The UAS would be moved away and grounded when birds are present, and any birds moving into the landing zone after takeoff would be monitored and an alternate landing location would be selected. If active nests are in the takeoff or landing areas, an alternate location would be selected. The UAS may emit low levels of noise but due to the short duration of the flights and the ambient noise generated by the surrounding area, adverse impacts due to noise are not anticipated. Due to the short duration of the flights, the presence of a visual observer before and during each flight, and that flights would only occur during daylight hours, DOE has determined there would be no effect on special status species as a result of project activities.

NATIONAL MARINE FISHERIES SERVICE (NMFS) CONSULTATION
NLR previously completed a biological assessment of the proposed location in preparation for an informal Section 7 Endangered Species Act (ESA) consultation with NMFS in November 2024. There are 5 federally listed endangered species under NMFS's jurisdiction that could occur near the research area. The proposed project location includes designated critical habitat for one species, the Hawaiian Monk Seal, and proposed critical habitat for one species, the Central North Pacific Green Sea Turtle. DOE determined there would be no effect to ESA-listed species and/or designated critical habitat. The UAS flights would be conducted from the Makai Research Pier. Beaches and public shoreline areas would be avoided by the flight crew. Because of this, impacts to the Hawaiian Monk Seal are not anticipated.

GFO communicated its determination to NMFS on February 10, 2026. NMFS concurred with this determination, saying the "proposed activities will not affect any ESA-listed species or critical habitat that has been designated for those species in a manner that we had not previously analyzed in our 12/17/2025 concurrence letter", on February 23, 2026. NLR was provided with the following Best Management Practices for UAS operation:

• All UAS will undergo a pre-flight test prior to deployment to ensure that the equipment is working properly, and weather conditions are conducive to flying a mission.
• All UAS operations will be conducted with a pilot and a spotter to ensure that the UAS is monitored at all times.
• Should any UAS make an emergency landing in the water, small boats will be deployed immediately to retrieve the equipment to minimize potential for pollution (e.g. loss of gas or batteries into the marine environment).
• All flights should be high enough in elevation so as not to disturb ESA-listed species (minimum: 200 ft.). Additionally, UAS should not hover over any ESA-listed species.
• Any behavioral disturbances from ESA-listed species must be reported immediately to [the DOE and NMFS. Examples include:
(i) Hauled out pinnipeds move or alter body position to look up;
(ii) Animals purposefully moving away, including entering the water;
(iii) Diving to get away.

The UAS operator would immediately gain altitude to reduce any potential further disturbance.

ADDITIONAL IMPACTS
Cultural resources were not identified in the project area. The proposed project would occur at an established test site that is used for research, and all activities would occur at existing facilities (i.e. the Pier and its parking lots); as such, the project would not affect the use of the area by marine life or the public.

Flight activities would be conducted by NLR staff as authorized in accordance with NLR policies, procedures, and safety requirements under FAA Part 107 regulations. This proposed flight resides within the Class G airspace, for which no notifications, authorization, or permits are required. Based on the location of the flights and planned safety measures, no adverse impacts are expected.

A risk assessment would be completed for UAS flight. Operational parameters, hazards, and controls would be identified in an Aviation Safety Plan prepared in consultation with NLR Environment, Safety, and Health staff and the UAS Steering Committee.

For Categorical Exclusion Determinations:

- The proposal fits within a class of actions that is listed in Appendix B to 10 CFR Part 1021 or Appendix B and C of DOE's NEPA Implementing Procedures (June 30, 2025). To fit within the classes of actions listed in Appendix B to 10CFR Part 1021, or Appendix B of DOE's NEPA Implementing Procedures, a proposal must satisfy the conditions that are integral elements of the classes of actions in Appendix B of both 10 CFR Part 1021 and DOE's NEPA Implementing Procedures.

- There are no extraordinary circumstances related to the proposed action that may affect the significance of the environmental effects of the proposal.

- The proposed action has not been segmented to meet the definition of a categorical exclusion.

- The proposed action is categorically excluded from further NEPA review.

NEPA PROVISION

DOE has made a final NEPA determination.

Include the following condition in the financial assistance agreement:

An approved Aviation Safety Plan shall be obtained prior to conducting flight activity.

All required permits and permissions shall be obtained as required prior to conducting flight activity.

All best management practices would be followed.

Notes:

NLR
Brandon Bammel, 02/26/2026

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: Electronically Signed By: Casey Strickland Date: 2/26/2026

NEPA Compliance Officer

FIELD OFFICE MANAGER DETERMINATION

☑ Field Office Manager review not required
☐ Field Office Manager review required

BASED ON MY REVIEW I CONCUR WITH THE DETERMINATION OF THE NCO :

Field Office Manager's Signature: _____ Date: _____

Field Office Manager