NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA)

NOTICE: WFF-2015-02

NATIONAL ENVIRONMENTAL POLICY ACT (NEPA): Antares 200 Configuration Expendable Launch Vehicle (ELV) at Wallops Flight Facility (WFF)

AGENCY: NASA

ACTION: Finding of No Significant Impact (FONSI)

SUMMARY: Pursuant to the NEPA of 1969, as amended (42 U.S. Code [U.S.C.] § 4321 et seq.), the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] § 1500-1508), and NASA Procedures for Implementing NEPA (14 CFR Subpart 1216.3), NASA has made a FONSI with respect to its proposed authorization of the processing, static fire testing, and launching of the 200 Configuration Antares ELV at WFF, Accomack County, Virginia.

ADDRESS: The Final Supplemental Environmental Assessment (SEA) that supports and serves as a basis for this FONSI may be reviewed at:

- Chincoteague Island Library, Chincoteague, Virginia
- Wallops Flight Facility Visitor's Center, Route 175 near Chincoteague, Virginia
- Eastern Shore Public Library, Accomac, Virginia

An electronic copy of the Final SEA is available on the Internet at:
http://sites.wff.nasa.gov/code250/Antares_FSEA.html.

A limited number of copies of the Final SEA may be obtained by contacting the NASA representative at the address or telephone number indicated below.

FOR FURTHER INFORMATION, CONTACT: Mr. Joshua Bundick, NASA WFF, Mailstop: 250.W, Wallops Island, Virginia, Phone: (757) 824-2319, Email: Joshua.A.Bundick@nasa.gov.

SUPPLEMENTAL INFORMATION: On August 29, 2009, NASA issued a FONSI[1] for its *Final Environmental Assessment for the Expansion of the Wallops Flight Facility Launch Range* (hereafter 2009 *Final EA*)[2]. In its FONSI, NASA identified no significant effects on the human environment associated with Alternative 1, which entailed NASA and Commonwealth of Virginia-funded construction of facilities; testing, fueling, and processing of liquid-fueled ELVs and associated spacecraft; conducting up to two ELV static test fires per year; and launching up to six liquid-fueled ELVs from the Virginia Commercial Space Flight Authority's (VCSFA) Mid Atlantic Regional Spaceport (MARS) Pad 0-A. The 2009 *Final EA* identified Orbital Sciences Corporation's (since renamed Orbital ATK) Taurus II (since renamed Antares) as the largest liquid-fueled ELV to be processed at WFF and launched from MARS Pad 0-A.

[1] The 2009 FONSI is available online: http://sites.wff.nasa.gov/code250/docs/expansion_ea/MARS_FINAL_FONSI_signed.pdf.
[2] The 2009 *Final EA* is available online: http://sites.wff.nasa.gov/code250/docs/expansion_ea/EWLR_FEA.pdf.

Since issuing its FONSI in 2009, NASA and the VCSFA collectively implemented the 2009 *Final EA's* Alternative 1 by constructing a Horizontal Integration Facility (Building X-079) on mid-Wallops Island, modifying Building V-055 on north Wallops Island to repurpose it as a spacecraft fueling facility, constructing a liquid fueling facility adjacent to Pad 0-A, and upgrading the Pad 0-A launch structure to support medium-class liquid-fueled ELVs. Upon final certification of the new launch pad and support facilities by NASA's safety organization, Orbital ATK conducted one static fire test and four successful Antares launches in 2013 and 2014.

On October 28, 2014, Orbital ATK's fifth Antares flight from WFF, named ORB-3, suffered a catastrophic failure shortly after liftoff. In response to the ORB-3 mishap, Orbital ATK has proposed to introduce an enhanced version of Antares that was not originally considered in the 2009 *Final EA*. Consequently, NASA prepared an SEA to consider the potential environmental effects of Orbital ATK's proposal. As a supplement to the 2009 *Final EA*, the SEA focuses on the differences between the current Antares configuration at WFF (i.e., the "100" Configuration) and the proposed upgraded version (i.e., the "200" Configuration). Updated information regarding WFF's environmental context is also provided, as appropriate. Both the 2009 *Final EA* and the SEA are incorporated by reference in this FONSI.

The Federal Aviation Administration (FAA) Office of Commercial Space Transportation served as a Cooperating Agency in preparing the SEA, as it possesses both specialized expertise and regulatory authority regarding the proposal.

Alternatives Considered

The SEA evaluates in detail two alternatives: the Proposed Action and the No Action Alternative. Under the Proposed Action, NASA would authorize the VCSFA and Orbital ATK to process, static fire test, and launch the 200 Configuration Antares ELV at WFF.

The 200 Configuration Antares is very similar to the 100 Configuration, the primary difference being the first stage engines employed. The engines proposed for the 200 Configuration would be more powerful (up to approximately 17 percent more thrust at sea level, depending on throttle setting) than the previous 100 Configuration engines and, therefore, would allow for a heavier payload to be placed into orbit. The types of propellants (i.e., liquid oxygen and refined kerosene) would remain the same. Outside of the rocket itself, the 200 Configuration Antares would require slightly different ground support equipment (used to handle and test rocket components) and fueling infrastructure.

In addition to authorizing the activities to occur at WFF, NASA would provide Orbital ATK and VSFCA a variety of launch range services, including use of government-owned facilities and equipment, pre- and post-launch safety oversight, and range surveillance and clearance.

Under the No Action Alternative, NASA would not allow VCSFA and Orbital ATK to process, static fire test, or launch an upgraded version of Antares from Pad 0-A. Processing and launch operations would continue with the currently configured Antares ELV (i.e., the "100" Configuration) as described in Sections 2.2.2 and 2.2.3 of the 2009 *Final EA*.

Environmental Analysis

The SEA examines the potential direct, indirect, and cumulative effects of the alternatives on physical, biological, and social resources. Resources evaluated in detail include soils, water quality, the coastal zone, air quality, noise, vegetation, wildlife and migratory birds, marine mammals, threatened and endangered species, land and water uses, cultural resources, and Department of Transportation Act of 1966 Section 4(f) (49 U.S.C. § 303) properties. In summary, the SEA concludes that potential effects to these resources would be negligible to minor.

Furthermore, in accordance with the CEQ Regulations, NASA must consider both the context and intensity of potential environmental effects when determining significance under NEPA (40 CFR § 1508.27). The following presents NASA's assessment of both.

Context – This means that the significance of an action must be analyzed in several contexts such as society as a whole, the affected region, the affected interests, and the locality. Significance varies with the setting of the proposed action.

WFF has operated as a NASA rocket launch site for more than 70 years. Moreover, the majority of environmental effects would occur within or adjacent to an existing launch complex (i.e., Pad 0-A) that has been exposed to multiple anthropogenic stressors (i.e., clearing, grading, fire, etc.) throughout its history.

Intensity – This refers to the severity of impact. The following ten factors should be considered in evaluating intensity:

(1) Impacts that may be both beneficial and adverse. A significant effect may exist even if the federal agency believes that on balance the effect will be beneficial.

As identified in the 2009 *Final EA* and incorporated by reference in the Final SEA, the Proposed Action would result in beneficial effects on the local community by providing both employment opportunities and increased opportunities for space-related tourism. The 2009 *Final EA* and the Final SEA also identify unavoidable adverse effects, largely to natural resources. However, regardless of the effect – whether beneficial or adverse – they would be infrequent with a short-term duration.

(2) The degree to which the proposed action affects public health or safety.

The Proposed Action would not adversely affect public health or safety. As discussed in the 2009 *Final EA* and incorporated by reference into the Final SEA, ELV launches at WFF are conducted in accordance with nationally adopted range safety criteria.

(3) Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.

As identified in the 2009 *Final EA*, and incorporated by reference in the Final SEA, the geographic area in which Proposed Action would occur (i.e., the Wallops Island area and Atlantic Ocean downrange) does not contain prime farmlands or wild and scenic rivers. Nominal launches would have limited potential to affect nearby cultural resources (i.e., National Register

of Historic Places listed or eligible structures). Possible damage incurred during a launch failure is discussed in more detail under intensity factor #8, below.

Wallops Island and the surrounding area do contain two National Wildlife Refuges (NWR), a National Seashore, and a large network of both tidal and non-tidal wetlands. As discussed in the Final SEA, ELV launches from WFF have proven to be a popular visitor attraction to the nearby Chincoteague NWR, and to a somewhat lesser extent, the neighboring Assateague Island National Seashore. Furthermore, NASA closely coordinates with NWR staff to ensure that launch operations affect to the least extent practicable their ability to conduct biological monitoring within the NWR. The Proposed Action would not affect Wallops Island NWR. Finally, the invasive wetland plant, *Phragmites australis*, long considered of lower ecological value than comparable wetlands comprised of native species, dominates the wetland areas potentially affected by the Proposed Action.

(4) The degree to which the effects on the quality of the human environment are likely to be highly controversial.

The environmental effects of the Proposed Action are unlikely to be scientifically controversial. In preparing both the 2009 *Final EA* and the Final SEA, NASA relied upon the best available information in scientific journals, government reports, and its own monitoring data. While conducting its research, NASA did not identify conflicting scientific positions regarding a potential effect induced by its Proposed Action.

(5) The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.

The environmental effects of processing, static fire testing, and launching ELVs are well studied and understood. Furthermore, the Antares 200 Configuration ELV is very similar to the 100 Configuration, which was the subject of the 2009 *Final EA.*

(6) The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.

The Proposed Action would not establish a precedent for future actions, nor would it represent a decision in principle about a future consideration. Rather, the action represents the re-establishment of an existing launch capability at an existing launch site.

(7) Whether the action is related to other actions with individually insignificant but cumulatively significant impacts.

Supported by the multiple cumulative effects analyses performed for actions on Wallops Island that were incorporated by reference and summarized in the Final SEA, the additive effects of the Proposed Action when considered with other past, present, and reasonably foreseeable future actions, would not result in significant cumulative effects on any resource considered.

(8) The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.

As discussed in both the 2009 *Final EA* and Final SEA, under nominal flight conditions, the Proposed Action would have only a limited potential to affect historic properties. Only in the case of a launch failure (e.g., ORB-3) would NASA expect aboveground historic properties (i.e.,

buildings) to be affected. Although the probability of this occurring is considered to be quite low, and the extent of the effect would be incident-specific, based on the ORB-3 experience, the most likely effects would be damage to architectural features, including windows.

In consideration of these facts, remedies are available to property owners should they incur launch-induced damages. This process was recently demonstrated in repairing ORB-3 related damages to an offsite National Register-listed historic property (i.e., Wharton Place, Mappsville, Virginia). Furthermore, in the unlikely event that such matters arise in the future, NASA would follow the processes specified in its 2014 Programmatic Agreement with the Virginia Department of Historic Resources, Advisory Council on Historic Preservation, and consulting parties.

(9) The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.

In accordance with Section 7 of the Endangered Species Act (16 U.S.C. § 1531 et seq.), NASA consulted with the National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS). NASA received concurrence from NMFS that its Proposed Action is not likely to adversely affect Federally listed species under NMFS jurisdiction.

NASA's consultation with USFWS is ongoing. In contrast to the action-specific ESA informal consultation NASA undertook with NMFS in parallel with preparing the SEA, NASA reinitiated a larger-scope formal ESA consultation with USFWS for listed species under its jurisdiction. Despite the fact that the processing, static fire testing, and launching of the 200 Configuration Antares as described in the SEA is essentially the same as that considered in NASA's existing USFWS-issued Biological Opinions (BOs), multiple factors, including 1) the listing of additional species since the issuance of the BOs in 2010 (i.e., northern long-eared bat and rufa red knot), 2) the need to update WFF's overarching ESA documentation to reflect the facility's current operations (including facets of which are unrelated to the Proposed Action considered in the SEA), and 3) the mutual NASA-USFWS intent to consolidate the two existing BOs, led NASA to its decision to re-initiate formal ESA consultation.

USFWS has concurred with NASA's determinations that its Proposed Action (albeit larger in scope than the action considered in the Final SEA) is not likely to adversely affect seabeach amaranth; roseate tern; Delmarva Peninsula fox squirrel; northern long-eared bat; and leatherback, Kemp's ridley, and green sea turtles. USFWS also concurred with NASA that its action is likely to adversely affect piping plover, rufa red knot, and loggerhead sea turtle. It is for this reason that USFWS is currently preparing a revised BO in response to NASA's request for formal ESA consultation.

To this end, NASA would not authorize operations under the Proposed Action that could adversely affect ESA-listed species or their habitat (e.g., launches) until USFWS issues its BO, completing the formal consultation process. Should the forthcoming USFWS-issued BO include terms and conditions or reasonable and prudent measures applicable to Antares operations at Pad 0-A, they would be incorporated into future revisions of WFF's Protected Species Management Plan for implementation by NASA or its designee (e.g., VCSFA or Orbital ATK).

(10) Whether the action threatens a violation of federal, state, or local law or requirements imposed for the protection of the environment.

NASA, VCSFA, and/or Orbital ATK have either obtained or would obtain all necessary environmental approvals prior to conducting the Proposed Action.

Public Involvement

NASA notified the public of the availability of the Draft SEA through a combination of electronic correspondence and published notices in local newspapers. The Draft SEA was also available for public review on the internet, at local libraries, and at the WFF Visitor Center.

NASA provided a 30-day public comment period on the Draft SEA, during which it received comments from one Federal agency, the U.S Environmental Protection Agency (USEPA). The majority of USEPA's comments were related to: 1) clarifying the extent and findings of the environmental investigation conducted following the ORB-3 mishap, 2) requests for NASA to provide additional details about the Proposed Action, and 3) requests for NASA to include additional detail regarding the extent of the alternatives' potential environmental effects.

In parallel with its 60-day review of the Proposed Action under Section 307 of the Coastal Zone Management Act (16 U.S.C. § 1451 et seq.), the Virginia Department of Environmental Quality submitted comments on behalf of eight state agencies and Accomack County. These comments provided Virginia's Federal Consistency concurrence and reiterated requirements of state regulatory programs; they did not raise specific concerns regarding the alternatives or environmental impact analysis presented in the Draft SEA.

In preparing the Final SEA, NASA considered all comments received. Comments received on the Draft SEA and NASA's responses to them are included in the Final SEA as Appendix A.

Conclusion

On the basis of the Final SEA, NASA has determined that the environmental impacts associated with its authorizing the VCSFA and Orbital ATK to process, static fire test, and launch the Antares 200 Configuration ELV at WFF will not individually or cumulatively have a significant impact on the quality of the human environment within the meaning of Section 102(2)(c) of NEPA. Therefore, an Environmental Impact Statement is not required.

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Director
Wallops Flight Facility

OCTOBER 9, 2015
Date