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Congress of the United States
House of Representatives
COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY
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September 6, 2024

The Honorable Bill Nelson
Administrator
National Aeronautics and Space Administration
The Mary W. Jackson NASA Headquarters Building
300 Hidden Figures Way, S.W.
Washington, D.C. 20546

Dear Administrator Nelson,

On July 17, 2024, the National Aeronautics and Space Administration (NASA) announced its decision to cancel the Volatiles Investigating Polar Exploration Rover (VIPER) project. As leaders of the authorizing committee of NASA, we request that you provide further information regarding NASA's decision to cancel the VIPER project.

VIPER Spacecraft

NASA seeks to search for and characterize water ice and other volatiles on the Moon, including water ice located in permanently shadowed regions near the lunar south pole. NASA initially planned to achieve this goal using the Resource Prospector mission, a rover with a target life cycle cost of $250 million and an initial operating capability of late 2022, but cancelled the mission concept in its early stages in 2018 as its scope was deemed too limited to meet NASA's needs.[1] Following the cancellation of Resource Prospector, NASA initiated the VIPER project and expanded the size of the rover so that it could operate for longer time periods in permanently shadowed regions and move to multiple locations. VIPER's objectives would also contribute to NASA's lunar exploration activities and serve as a precursor to NASA's crewed Artemis missions. Water ice has long been identified as an important resource that could be collected and used in-situ to enable lunar operations. Data gathered by VIPER will inform plans for United States-led exploration of the Moon, which will ultimately prepare NASA to send the first humans to the surface of Mars.

The VIPER project was confirmed in 2021 with a development cost of $336 million and a life cycle cost of $433.5 million, later revised during a May 2023 project replan to a development cost of $405 million and a life cycle cost of $505 million.[2] NASA and the American taxpayers have obligated $453 million of the total $505 million life cycle cost for the VIPER project. A June 2024 Government

[1] Jeff Foust, NASA Argues Resource Prospector No Longer Fit Into the Agency's Lunar Exploration Plans, SPACENEWS (May 4, 2018), https://spacenews.com/nasa-argues-resource-prospector-no-longer-fit-into-agencys-lunar-exploration-plans/
[2] Government Accountability Office, NASA Assessments of Major Projects (June 2024).

Accountability Office report found it likely that the final VIPER life cycle cost would exceed the approved $505 million,[3] and NASA now estimates a life cycle cost of $609.6 million, an increase of over $176 million from the estimated 2021 life cycle cost.[4] While the project has experienced significant cost growth, with additional cost increases anticipated, the assembled and integrated rover is in the final phase of development, undergoing environmental and other system-level testing. NASA estimates that the cancellation of VIPER would save, at minimum, $84 million.[5]

Commercial Lunar Payload Services Provider

NASA selected Astrobotic as the Commercial Lunar Payload Services (CLPS) provider in June of 2020, awarding Astrobotic a task order worth $199 million to deliver VIPER to the surface of the Moon in late 2023 using the *Griffin* lander.[6] Because the VIPER spacecraft was a high-value CLPS payload, NASA later modified this task order to reduce its risk exposure, paying Astrobotic $91 million to perform additional testing and provide NASA with augmented insight into lander development. These and other modifications resulted in significant task order cost increases and a one-year delay to late 2024.

In January of 2024, Astrobotic experienced a failure on the propulsion system of its Peregrine Mission One lunar lander, which shares some design similarities with the larger *Griffin* lander. NASA now projects a *Griffin Mission One* launch date of no earlier than September 2025.[7] According to a June 2024 NASA Inspector General Report, NASA's total contracted cost for VIPER commercial lunar delivery services is $323 million, which includes three contract modifications (representing a total increase of $123.5 million from the original $199.5 million task order value). As part of its decision to end the VIPER project, NASA plans to honor the full value of the firm fixed price contract with Astrobotic for lunar delivery services that NASA has spent significant resources tailoring specifically to accommodate the VIPER mission, to launch a mass simulator in place of VIPER.

Evaluation

NASA's decision to terminate a nearly completed lunar rover and use the full value of the firm fixed price contract with the CLPS provider to launch dead weight in lieu of VIPER raises serious questions. Further, we must fully assess the strategic and scientific implications of NASA's decision not to launch VIPER, complete its delivery to a site near the South Pole of the Moon, and gain important data on lunar volatiles. This is a critical time to demonstrate the United States's commitment to leadership on lunar science and exploration, and any action taken with regards to VIPER must further that purpose.

We understand that the fiscal environment for NASA is challenging and that NASA must make difficult decisions when programs are significantly over budget and behind schedule. Given the investments made on VIPER to date, the status of the assembled and integrated rover, and the national importance of our civil and commercial lunar exploration activities, it is imperative that Congress fully evaluate NASA's proposed decision to terminate VIPER. We, therefore, request that you provide detailed cost and schedule information regarding NASA's proposed termination of VIPER and

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[3] *Id.*

[4] Jeff Foust, NASA Cancels Viper Lunar Rover, SPACENEWS (July 17, 2024), https://spacenews.com/nasa-cancels-viper-lunar-rover/

[5] *Id.*

[6] Office of Inspector General, NASA's Volatiles Investigating Polar Exploration Rover (VIPER) Mission (April 2022).

[7] Jeff Foust, NASA Cancels Viper Lunar Rover, SPACENEWS (July 17, 2024), https://spacenews.com/nasa-cancels-viper-lunar-rover/.

information regarding alternative options for the rover going forward, including the option of proceeding with the launch and landing of VIPER on the Moon.

To assist our evaluation, please provide the following information by September 20, 2024. If you have any questions, please contact Charlie Scales at (202) 225-6371 or charlie.scales@mail.house.gov.

1. For the VIPER project, an updated estimate of—

    a. The cost and schedule to complete spacecraft development.

    b. The cost and schedule of integration and testing (broken out separately within the development cost) for the spacecraft.

    c. The cost to operate the spacecraft if it was completed.

    d. NASA's level of confidence in each of the foregoing cost and schedule estimates in a-c.

    e. If the project is to be terminated, the estimated project closeout and shutdown costs.

2. A list of all steps NASA has taken thus far to cancel VIPER, and any steps planned for the remainder of FY24.

3. A copy of the NASA-Astrobotic CLPS agreement, a copy of Task Order 20A, and any documents related to contract modifications or exercised task order options.

4. For the CLPS agreement and Task Order 20A—

    a. If the VIPER spacecraft was launched as a payload on the Griffin lander—

        i. A description of additional modifications to the task order or agreement that would be necessary to complete the mission, if any.

        ii. An updated cost estimate and schedule for services under the task order.

    b. A description of benefits to NASA and the Federal Government of paying the full remaining value of the CLPS 20A task order to receive data from Astrobotic for "testing" and "demonstration" of the Griffin lander, and the impact to those benefits if the test schedule for Griffin is further delayed.

5. A copy of the results and recommendations from Astrobotic's Failure Review Board for Peregrine Mission One, and a description of whether NASA accepted or agreed with such results and recommendations.

6. A copy of NASA's FY24 reprogramming request to Congress for VIPER.

7. An accounting of FY24 unobligated and unallocated funds for—

    a. The VIPER spacecraft.

    b. The CLPS task order to deliver the VIPER spacecraft.

8. An estimated FY25 funding request, if the VIPER mission were to be continued.

9. A copy of records related to NASA's initiation of any non-advocate review related to the VIPER project or Astrobotic CLPS services for the VIPER project, the results of the non-advocate review, and any documentation related to NASA's assessment of the results of the non-advocate review, including records related to the VIPER Review Team in 2020 and the Astrobotic Independent Assessment Team in 2021.

10. A description of lessons learned—

    a. From the cancellation of Resource Prospector and how NASA has considered such lessons learned in its assessment of whether to cancel VIPER.

    b. From VIPER that NASA will apply to future CLPS missions.

11. A detailed comparison of the estimated savings associated with terminating VIPER and flying *Griffin* with a mass demonstration payload versus completing VIPER and landing it with *Griffin*, and carrying out mission operations.

12. An estimated cost and timeline to 1) disassemble, 2) store, and 3) remanifest on other missions the VIPER instruments, and an assessment of how remanifesting the VIPER instruments on other lunar landers would affected completion of VIPER's science objectives.

13. A summary of NASA's "alternative methods to accomplish many of VIPER's goals and verify the presence of water ice at the lunar south pole"[8], including estimated cost and schedule, and a comparison of scientific objectives completed using such alternative methods with the scientific objectives the VIPER mission planned to accomplish.

14. For FY24 as planned, prior to the decision proposing to cancel VIPER, for each of the next five fiscal years, provide –

    a. the number of NASA civil servants, number of contractors, and number of FTEs associated with the VIPER project, including development and operations, as appropriate; and

    b. the number of NASA civil servants, number of contractors, and number of FTEs associated with the Task Order 20A.

15. A description of NASA efforts to seek international partnerships on the VIPER mission before making the decision to cancel the program.

[8] NASA, NASA Ends VIPER Project, Continues Moon Exploration (July 17, 2024), https://www.nasa.gov/news-release/nasa-ends-viper-project-continues-moon-exploration/.

16. A summary of interest expressed by U.S. entities to acquire VIPER or any of the instruments, including a description of offers has NASA received in response to its Request for Information (SMD-VIPER-01).

17. An assessment of the impact of cancelling VIPER to the United States' international competitiveness and leadership role in establishing any potential norms of behavior regarding operations on the surface of the Moon.

Sincerely,

Frank D. Lucas
Chairman

Zoe Lofgren
Ranking Member

Brian Babin
Chairman
Subcommittee on Space and Aeronautics

Eric Sorensen
Ranking Member
Subcommittee on Space and Aeronautics