NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

REPORT
PURSUANT TO
GOOD ACCOUNTING OBLIGATION IN GOVERNMENT ACT OF 2019
(P.L. 115-414)

As of December 31, 2022

Table of Contents

NASA'S REQUIRED REPORTING UNDER THE GOOD ACCOUNTING OBLIGATION IN GOVERNMENT ACT (P.L. 115-414)

Background

In 2019, the President signed into law the "Good Accounting Obligation in Government Act" (the Act). The Act was envisioned to improve transparency into long-standing audit recommendations issued by the Government Accountability Office (GAO) and federal Office of Inspectors General (OIG). By requiring agency reporting on the lack of progress towards implementation, the Congress postulated that Federal agencies would be held more accountable and that the public can more readily assess agency funding requests in light of unfulfilled efficiency improvements that could potentially yield cost savings.

Section 2 of the Act imposes an affirmative requirement on Federal agencies to submit an annual report on publicly issued GAO and OIG recommendations classified as "open" for more than one year from the date of the annual budget justification submission. Additionally, the Act also requires that agencies report on publicly issued GAO recommendations which were determined to "closed but not implemented." For both categories of recommendations -- open, closed, and closed but not implemented – Federal agencies are required to provide an explanation as to why final management action[1] has not yet been completed. Finally, the Act also requires agencies perform a reconciliation of discrepancies between recommendations reported by GAO and OIGs, and Federal agencies.

Reporting Methodology and Report Structure

This report includes GAO and OIG recommendations from November 19, 2012, to January 27, 2021, which remained unimplemented for one year or more from the planned FY 2022 budget justifications submission date.

The report has four parts:

Appendix A: A report listing GAO recommendations and their implementation status.
Appendix B: A report listing GAO recommendations closed but not implemented.
Appendix C: A report listing OIG recommendations and their implementation status.
Appendix D: A reconciliation of this report and the OIG's Semi-Annual Report.
Appendix E: A listing of acronyms used throughout this report.

For purposes of NASA's FY 2023 reporting under the Act, the following definitions are provided in order to enhance the utility and readability of this report:

---

[1] Final Management Action: The completion of all actions that the management of an establishment has concluded, in its management decision, are necessary with respect to the findings and recommendations included in an audit report; or, in the event that the management of an establishment concludes no action is necessary, final action occurs when a management decision has been made. Source: *Inspector General Act of 1978 (as amended)*.

- **Open:** Final management action is pending/in-progress (includes recommendations for which final management action has been completed, but auditor verification/validation is pending/in-progress)

- **Closed:** Final management action and corresponding auditor verification/validation completed

- **Closed/Not Implemented:** Recommendation has been closed, however final management action has been partially completed, not completed, or action(s) not recommended have been taken. (Applicable only to GAO recommendations).

Appendix A

GAO Recommendations Open More than One Year (Detail)

1. **Report: NASA Actions Need to Improve Transparency and Assess Long-Term Affordability of Human Exploration Programs** (GAO-14-385; 5/8/2014)

    Recommendation: (1) The Administrator of the National Aeronautics Space Administration should ensure that the department's IT management policies address the role of the CIO for key responsibilities in the 6 areas GAO identified.

    Status: NASA Action Completed.

    Office of Primary Responsibility: Office of the Chief Information Officer

    Target Completion Date: n/a

2. **Report: Federal Chief Information Officers: Critical Actions Needed to Address Shortcomings and Challenges in Implementing Responsibilities** (GAO-18-93; 8/2/2018)

    Recommendation: (1) The Administrator of the National Aeronautics Space Administration should ensure that the department's IT management policies address the role of the CIO for key responsibilities in the 6 areas GAO identified

    Status: NASA Action Completed.

    Office of Primary Responsibility: Office of the Chief Information Officer

    Target Completion Date: n/a

3. **Report: NASA Human Space Exploration: Persistent Delays and Cost Growth Reinforce Concerns Over Management of Programs** (GAO-19-377; 6/19/2019)

    Recommendation: (3) The NASA Associate Administrator for Human Exploration and Operations direct the EGS program to demonstrate design maturity by completing 3D product modeling of the basic and functional design of the second Mobile Launcher prior to construction start.

    Status: NASA Action Completed.

    Office of Primary Responsibility: Exploration Systems Mission Directorate

    Target Completion Date: n/a

4. **Report: NASA Human Space Exploration: Persistent Delays and Cost Growth Reinforce Concerns Over Management of Programs** (GAO-19-377; 6/19/2019)

    Recommendation: (4) Ensure that the AA/HEOMD direct the SLS and Orion programs to reevaluate their strategies for incentivizing contractors and determine whether they

could more effectively incentivize contractors to achieve the outcomes intended as part of ongoing and planned contract negotiations.

Status: NASA Action Completed.

Office of Primary Responsibility: Exploration Systems Mission Directorate

Target Completion Date: n/a

5. **Report: Cybersecurity: Agencies Need to Fully Establish Risk Management Programs and Address Challenges** (GAO-19-384; 7/25/2019)

   Recommendation: (1) Update the agency's policies to address an organization-wide risk assessment and the use of risk assessments to inform plan of action and milestones (POA&M) prioritization.

   Status: NASA Action Completed.

   Office of Primary Responsibility: Office of the Chief Information Officer

   Target Completion Date: n/a

6. **Report: NASA Lunar Programs: Opportunities Exist to Strengthen Analyses and Plans for Moon Landing** (GAO-20-68; 12/19/2019)

   Recommendation: (5) Ensure that the NASA Associate Administrator for Human Exploration and Operations direct the Advanced Exploration Systems division to commit to a completion date and finalize a cohesive document outlining the rationale for selecting its current lunar architecture and lunar programs.

   Status: NASA Action Completed.

   Office of Primary Responsibility: Exploration Systems Mission Directorate

   Target Completion Date: n/a

7. **Report: Telecommunications: Agencies Should Fully Implement Established Transition Planning Practices to Help Reduce Risk of Costly Delays** (GAO-20-155; 4/7/2020)

   Recommendation: (1) The CIO should update the telecommunications inventory to include all telecommunications assets and services in use at the department and updates NASA processes for ongoing maintenance of the inventory to include the complete inventory.

   Status: NASA Action Completed.

   Office of Primary Responsibility: Office of the Chief Information Officer

   Target Completion Date: n/a

8. **Report: Telecommunications: Agencies Should Fully Implement Established Transition Planning Practices to Help Reduce Risk of Costly Delays** (GAO-20-155; 4/7/2020)

> **Recommendation:** (2) The CIO should complete efforts to identify the Agency's future telecommunications needs using a complete inventory of existing telecommunications services.
>
> **Status:** NASA Action Completed.
>
> **Office of Primary Responsibility:** Office of the Chief Information Officer
>
> **Target Completion Date:** n/a

9. **Report: Telecommunications: Agencies Should Fully Implement Established Transition Planning Practices to Help Reduce Risk of Costly Delays** (GAO-20-155; 4/7/2020)

> **Recommendation:** (3) The CIO should identify telecommunications transition roles and responsibilities related to (1) managing human capital during the planning and execution phases of the transition and (2) providing legal expertise during the execution phase of the transition.
>
> **Status:** NASA Action Completed.
>
> **Office of Primary Responsibility:** Office of the Chief Information Officer
>
> **Target Completion Date:** n/a

10. **Report: Telecommunications: Agencies Should Fully Implement Established Transition Planning Practices to Help Reduce Risk of Costly Delays** (GAO-20-155; 4/7/2020)

> **Recommendation:** (4) The CIO should conduct an analysis to support the anticipated cost saving identified as part of the Agency's justification for its resource requests related to the hardware and software upgrades for the telecommunications transition, and justifies its resource requests for program management staff, conducts an analysis to identify staff resources needed for the entire transition effort; and analyzes training needs for staff assisting with the transition.
>
> **Status:** NASA Action Completed.
>
> **Office of Primary Responsibility:** Office of the Chief Information Officer
>
> **Target Completion Date:** n/a

11. **Report: Telecommunications: Agencies Should Fully Implement Established Transition Planning Practices to Help Reduce Risk of Costly Delays** (GAO-20-155; 4/7/2020)

Recommendation: (5) The CIO should take into account the Agency's mission critical systems and contingency plans in NASA's telecommunications transition timeline.

Status: NASA Action Completed.

Office of Primary Responsibility: Office of the Chief Information Officer

Target Completion Date: n/a

12. **Report: Federal Research: Agencies Need to Enhance Policies to Address Foreign Influence** (GAO-21-130; 12/17/2020)

Recommendation: (1) The Administrator of the National Aeronautics and Space Administration should update the agency's conflict of interest policy on non-financial conflicts, such as those the one developed by OSTP, and address those conflicts both foreign and domestic.

Status: NASA Action Completed.

Office of Primary Responsibility: Office of Procurement

Target Completion Date: n/a

13. **Report: Federal Research: Agencies Need to Enhance Policies to Address Foreign Influence** (GAO-21-130; 12/17/2020)

Recommendation: (2) The Administrator of the National Aeronautics and Space Administration should document procedures, including roles and responsibilities, for addressing failures to disclose required information, both foreign and domestic.

Status: NASA Action Completed.

Office of Primary Responsibility: Office of Procurement

Target Completion Date: n/a

14. **Report: NASA LUNAR PROGRAMS: Significant Work Remains, Underscoring Challenges to Achieving Moon Landing in 2024** (GAO-21-330; 5/26/2021)

Recommendation: (4) The NASA Administrator, in coordination with the Associate Administrator for Human Exploration and Operations Mission Directorate, should ensure the Advanced Exploration Systems Division documents the process used to determine the program and technical management practices and tools that it will apply to the Artemis III and later missions, in the absence of establishing a formal Artemis program.

Status: NASA Action Completed.

Office of Primary Responsibility: Exploration Systems Mission Directorate

Target Completion Date: n/a

15. **Report: NASA Actions Need to Improve Transparency and Assess Long-Term Affordability of Human Exploration Programs** (GAO-14-385; 5/8/2014)

> **Recommendation:** (1) Establish a separate cost and schedule baseline for work required to support the SLS Block I EM-2 and report this information to the Congress through NASA's annual budget submission. If NASA decides to fly the SLS Block I beyond EM-2, establish separate life cycle cost and schedule baseline estimates for those efforts, to include funding for operations and sustainment, and report this information annually to Congress via the agency's budget submission.

> **Status:** NASA successfully launched Artemis I and plans to use the Block 1 configuration for Artemis II and III. The Artemis II baseline for the Orion capsule was rebaselined in 2020 and is up to date, with no indications that a cost-overrun will occur prior to launch. An updated schedule for the Artemis II is planned for fall 2023 as the schedule team reviews Artemis I data to identify any new critical path items. Meanwhile, both Space Launch System (SLS) and Exploration Ground System (EGS) programs provided the first five-year operational cost estimate in Spring 2022. The next updated to this yearly estimate will be produced in Spring 2023. Lastly, the agency will look to developmental baselines of any capabilities that will fly on the Artemis III mission to create an estimate of mission costs.

> **Office of Primary Responsibility:** Exploration Systems Mission Directorate

> **Target Completion Date:** 12/31/2023

16. **Report: NASA Actions Need to Improve Transparency and Assess Long-Term Affordability of Human Exploration Programs** (GAO-14-385; 5/8/2014)

> **Recommendation:** (2) Because NASA intends to use increased capabilities of the SLS, Orion and GSDO efforts well into the future and has chosen to estimate costs associated with achieving capabilities, establish separate cost and schedule baselines for each additional capability that encompass all life cycle costs, to include operations and sustainment. When NASA cannot fully specify costs due to lack of well-defined missions or flight manifests, forecast a cost estimate range – including life cycle costs – having minimum and maximum boundaries. These baselines or ranges should be reported to Congress annually via the agency's budget submission.

> **Status:** Common Exploration Systems Development (CESD) is in the process of establishing Agency Baseline Commitments for both the SLS Exploration Upper Stage and Associated Capabilities and the EGS Mobile Launcher 2, both of which are set to fly on Artemis IV. As of 2022, SLS and EGS have also started reporting a yearly 5-year operational cost estimate for the Block 1 and Mobile Launcher 1 costs; the next update is anticipated Fall 2023.

> **Office of Primary Responsibility:** Exploration Systems Mission Directorate

> **Target Completion Date**: 12/31/2023

17. **Report: SPACE LAUNCH SYSTEM: Resources Need to be Matched to Requirements to Decrease Risk and Support Long Term Affordability** (GAO-14-631; 7/23/2014)

> **Recommendation:** (2) To provide decisionmakers with an informed basis for making investment decisions regarding the SLS program, NASA should identify a range of possible missions for each future SLS variant that includes cost and schedule estimates and plans for how those possible missions would fit within NASA's funding profile.
>
> **Status:** The planning of future SLS missions, regardless of which variant, will require stakeholder engagement across both Advanced Capability Division (ACD) and CESD divisions. As both continue to integrate under the new Exploration Systems Mission Directorate (ESDMD) organization, they will jointly produce a manifest for ongoing missions beyond Artemis IV. With the guidance offered by the Technical Integration office, they will also refine mission goals, requirements, and objectives in accordance with the hardware available for that particular mission. As the agency continues to develop its Moon to Mars objectives (first released in September 2022), which outline anticipated capabilities and mission needs, the Agency will provide a briefing to GAO and seek closure of this action.
>
> **Office of Primary Responsibility:** Exploration Systems Mission Directorate
>
> **Target Completion Date**: 12/31/2023

18. **Report: SPACE LAUNCH SYSTEM: Resources Need to be Matched to Requirements to Decrease Risk and Support Long Term Affordability** (GAO-14-631; 7/23/2014)

> **Recommendation:** (3) To allow for a continued assessment of progress and affordability, NASA should structure each future increment of SLS capability with a total cost exceeding the $250 million threshold for designation as a major project as a separate development project within the SLS program.
>
> **Status:** CESD is in the process of establishing Agency Baseline Commitments for both the SLS Exploration Upper Stage and Associated Capabilities, and the EGS Mobile Launcher 2, both of which are set to fly on Artemis IV. Upon the setting of these two commitments, the Agency will seek to close this recommendation.
>
> **Office of Primary Responsibility:** Exploration Systems Mission Directorate
>
> **Target Completion Date**: 12/31/2023

19. **Report: Telecommunications: Agencies Need Better Controls to Achieve Significant Savings on Mobile Devices and Services** (GAO-15-431; 5/21/2015)

> **Recommendation:** (1) Ensure a complete inventory of mobile devices and associated services is established.

Status: In progress: On 06/21/2021, NASA Office of the Chief Information Officer sent Request for Closure (RFC) information to GAO. On 11/07/2022, GAO asked for additional information to close the recommendation. NASA OCIO is currently in the process of gathering the additional information to close the recommendation.

Office of Primary Responsibility: Office of the Chief Information Officer

Target Completion Date: 2/28/2023

20. **Report: Telecommunications: Agencies Need Better Controls to Achieve Significant Savings on Mobile Devices and Services (GAO-15-431).** (GAO-15-431; 5/21/2015)

> **Recommendation:** (2) A reliable inventory of mobile service contracts is developed and maintained.
>
> **Status:** On 06/21/2021, NASA OCIO sent Request for Closure (RFC) information to GAO. On 11/07/2022, GAO asked for additional information to close the recommendation. NASA OCIO is currently in the process of gathering the additional information to close the recommendation.
>
> **Office of Primary Responsibility:** Office of the Chief Information Officer
>
> **Target Completion Date**: 2/28/2023

21. **Report: Telecommunications: Agencies Need Better Controls to Achieve Significant Savings on Mobile Devices and Services (GAO-15-431).** (GAO-15-431; 5/21/2015)

> **Recommendation:** (3) Procedures to monitor and control spending are established agencywide. Specifically, ensure that: procedures include assessing devices for zero, under, and over usage; personnel with authority and responsibility for performing the procedures are identified; and the specific steps to be taken to perform the process are documented.
>
> **Status:** In progress: On 06/21/2021, NASA OCIO sent RFC information to GAO. On 11/07/2022, GAO asked for additional information to close the recommendation. NASA OCIO is currently in the process of gathering the additional information to close the recommendation.
>
> **Office of Primary Responsibility:** Office of the Chief Information Officer
>
> **Target Completion Date**: 2/28/2023

22. **Report: NASA Information Technology: Urgent Action Needed to Address Significant Management and Cybersecurity Weaknesses** (GAO-18-337; 5/22/2018)

> **Recommendation:** (8) The Administrator should direct the Chief Information Officer to establish an agency-wide approach to managing cybersecurity risk that includes a cybersecurity strategy that, among other things, makes explicit the agency's risk

tolerance, accepted risk assessment methodologies, a process for consistently evaluating risk across the organization, response strategies and approaches for monitoring risk over time, and priorities for risk management investments.

Status: In Progress: NASA is continuing to develop and implement an agency-wide cybersecurity risk management strategy. In an effort to promote consistency and buy-in for the cybersecurity risk management strategy, the Chief Cybersecurity Risk Officer (CCRO) and Enterprise Cybersecurity Risk Management (ECRM) team participated in several forums, including the Cybersecurity Risk Managers face-to-face, the Artemis Cyber Summit, and the Science Mission Directorate Jet Propulsion Lab Mission Cybersecurity Metrics Workshop. The ECRM collaborated with the OCIO cyber risk professionals and mission partners and sought feedback on ways cybersecurity risk management strategies can be implemented within established OCIO processes. The agency-wide cybersecurity risk management strategy is in progress. Once a final draft is complete it will be reviewed by the Cybersecurity and Privacy Division (CSPD) stakeholders. Once finalized within CPSD, the strategy will be presented to appropriate OCIO Governance boards for approval. Following approval, integration into policies and procedures, outreach and piloting to mission and mission support organizations. The OCIO anticipates completion of these efforts by December 29, 2023.

Office of Primary Responsibility: Office of the Chief Information Officer

Target Completion Date: 12/29/2023

23. **Report: NASA COMMERCIAL CREW PROGRAM: Plan Needed to Ensure Uninterrupted Access to the International Space Station** (GAO-18-476; 7/11/2018)

    Recommendation: (4) After completing the agency certification review, NASA Chief Engineer and Chief Safety and Mission Assurance, with support from the NASA Associate Administrator for Human Exploration and Operation and the Commercial Crew Program Manager, should document lessons learned related to loss of crew as a safety threshold for future crewed spaceflight missions, given the complexity of the metric.

    Status: NASA is awaiting the Boeing certification in order to close this recommendation.

    Office of Primary Responsibility: Space Operations Mission Directorate

    Target Completion Date: 12/31/2023

24. **Report: Cybersecurity Workforce: Agencies Need to Accurately Categorize Positions to Effectively Identify Critical Staffing Needs** (GAO-19-144; 3/12/2019)

    Recommendation: (2) Take steps to review the assignment of the "000" code to any positions in the 2210 IT management occupation series, assign the appropriate NICE framework work role codes and assess the accuracy of the position descriptions.

Status: The planned action is for Office of the Chief Human Capital Officer (OCHCO) to assess the position descriptions for the nine 2210 positions and work with the supervisors of these positions to assign the appropriate National Initiative for Cybersecurity Education (NICE) framework work role code(s).

Office of Primary Responsibility: Office of the Chief Human Capital Officer

Target Completion Date: 5/1/2023

25. **Report: Scientific Integrity Policies: Additional Actions Could Strengthen Integrity of Federal Research** (GAO-19-265; 4/4/2019)

   Recommendation: (1) The Administrator of NASA should develop documented procedures for identifying and addressing alleged violations of its scientific integrity policy.

   Status: NASA's Scientific Integrity Policy is being revised in keeping with the guidance provided by the White House Fast Track Action Committee (FTAC) on Scientific Integrity and the Framework release by the FTAC's successor group, Office of Science and Technology Policy's (OSTP) Subcommittee on Scientific Integrity. Draft plans are due to OSTP on 10 April 2023; review comments due back to Agencies by 7 July 2023, and final plans due back to OSTP by 28 February 2024. NASA is fully on track to meet these deadlines.

   Office of Primary Responsibility: Office of the Chief Scientist

   Target Completion Date: 2/28/2024

26. **Report: NASA Lunar Programs: Opportunities Exist to Strengthen Analyses and Plans for Moon Landing** (GAO-20-68; 12/19/2019)

   Recommendation: (2) Ensure that the NASA Associate Administrator for Human Exploration and Operations directs the Gateway program to conduct a joint cost and schedule and confidence level at the program level for the Artemis III mission.

   Status: A joint cost and schedule confidence level (JCL) analysis is currently being performed to support the Gateway Program's planned readiness for Key Decision Point (KDP)-I by the end of April 2023; this has been made possible due to the successful completion of ECP-19 Technical Evaluations and the Preliminary Design Review (PDR) Technical Closeout in December 2022. Please note, however, that it may take longer to complete the full KDP process since it will depend on scheduling at both the ACD and Agency levels.

   Office of Primary Responsibility: Exploration Systems Mission Directorate

   Target Completion Date: 6/30/2023

27. **Report: NASA Lunar Programs: Opportunities Exist to Strengthen Analyses and Plans for Moon Landing** (GAO-20-68; 12/19/2019)

> **Recommendation:** (3) Ensure that the NASA Associate for Human Exploration and Operations directs the Gateway program to update its overall schedule for 2024 and add a KDP II before system integration.
>
> **Status:** The plan and schedule for future Lifecycle Reviews, to include KDP-II, is being worked in support of the Gateway Program's planned readiness for KDP-I by the end of April 2023. Please note, however, that it may take longer to complete the full KDP process since it will depend on scheduling at both the ACD and Agency levels.
>
> **Office of Primary Responsibility:** Exploration Systems Mission Directorate
>
> **Target Completion Date**: 6/30/2023

28. **Report: NASA Lunar Programs: Opportunities Exist to Strengthen Analyses and Plans for Moon Landing** (GAO-20-68; 12/19/2019)

> **Recommendation:** (4) Ensure that the NASA Associate Administrator for Human Exploration and Operations creates a life-cycle cost estimate for the Artemis III mission.
>
> **Status:** NASA is developing a methodology to provide Congress a repeatable assessment of mission costs for each mission in its Artemis campaign. Costs of newly developed capabilities will be provided in addition to production and operations cost estimates for any hardware in the mission that has been previously produced and operated. These estimates will include the cost of hardware production, integration costs for each mission, and operations costs, and separately the annual fixed basis of costs as captured by these programs. Costs expended by International Partners will be excluded. Future missions and mission content are predicated on Presidential direction and Congressional appropriations and therefore estimates could reflect changes in manifest, changes in contract strategies and/or fluctuations due to obsolescence and production rate. Such an assessment will be provided as a report outside of Major Program Annual Report (MPAR). All cost data will be consistent with the established reporting restrictions associated with pre-decisional data.
>
> **Office of Primary Responsibility:** Exploration Systems Mission Directorate
>
> **Target Completion Date**: 2/28/2023

29. **Report: NASA Lunar Programs: Opportunities Exist to Strengthen Analyses and Plans for Moon Landing** (GAO-20-68; 12/19/2019)

> **Recommendation:** (6) Ensure that the Office of Chief Engineer determine under what conditions it is appropriate to complete an analysis of alternatives, particularly when there are multiple pathways - including architectures or programs -that NASA could pursue in the future, and document the justification for not completing an analysis.

Status: The internal analysis concerning the option for policy has been completed and changes to policy have been drafted. The revised policy to be published in the fourth quarter of 2023.

Office of Primary Responsibility: Office of the Chief Engineer

Target Completion Date: 11/30/2023

30. **Report: NASA Human Space Exploration: Significant Investments in Future Capabilities Require Strengthened Management Oversight** (GAO-21-105; 12/15/2020)

    Recommendation: (1) The NASA Administrator ensure that the NASA Associate Administrator for Human Exploration and Operations Mission Directorate establish cost and baseline schedules for SLS Block 1B, SLS Block 2, Mobile Launcher 2, and Orion Docking System at their preliminary design reviews or as soon as practicable in advance of critical design reviews, preliminary design reviews or as soon as practicable in advance of critical design reviews.

    Status: CESD is in the process of establishing Agency Baseline Commitments for both the SLS Exploration Upper Stage and Associated Capabilities, and the EGS Mobile Launcher 2, both of which are set to fly on Artemis IV.

    Office of Primary Responsibility: Exploration Systems Mission Directorate

    Target Completion Date: 12/31/2024

31. **Report: NASA Human Space Exploration: Significant Investments in Future Capabilities Require Strengthened Management Oversight** (GAO-21-105; 12/15/2020)

    Recommendation: (2) The NASA Administrator should ensure that the NASA Associate Administrator for Human Explorations and Operations Mission Directorate establish cost and baseline schedules for SLS Block 1B, SLS Block 2, Mobile Launcher 2, and Orion Docking System at their preliminary design reviews or as soon as practicable in advance of critical design reviews.

    Status: CESD is in the process of establishing Agency Baseline Commitments for both the SLS Exploration Upper Stage and Associated Capabilities, and the EGS Mobile Launcher 2, both of which are set to fly on Artemis IV.

    Office of Primary Responsibility: Exploration Systems Mission Directorate

    Target Completion Date: 12/31/2023

32. **Report: NASA LUNAR PROGRAMS: Significant Work Remains, Underscoring Challenges to Achieving Moon Landing in 2024** (GAO-21-330; 5/26/2021)

    Recommendation: (2) The NASA Administrator should ensure that the NASA Office of the Chief Engineer develop guidance to mitigate risks associated with delaying the

establishment of high-level requirements early in the acquisition process when using service-type contracts and incorporate it in its reference guide or a similar document.

Status: Following the initial response to the recommendation, NASA established the Chief Program Management Officer (CPMO) and transitioned program management (PM) related functions previously under the Office of the Chief Engineer (OCE) to the CPMO. The NASA response to this recommendation will now be provided by the CPMO.

The CPMO in coordination with OCE are in the process of drafting the reference guide noted in the NASA response. Due to the transition of the agency PM functions from OCE to the CPMO and the time needed for the transition to occur, additional time is needed for CPMO to develop the reference guide.

Office of Primary Responsibility: Chief Program Management Officer

Target Completion Date: 8/31/2023

33. **Report: NASA LUNAR PROGRAMS: Significant Work Remains, Underscoring Challenges to Achieving Moon Landing in 2024** (GAO-21-330; 5/26/2021)

    Recommendation: (3) The NASA Administrator, in coordination with the Associate Administrator for the Human Exploration and Operations Mission Directorate, should ensure the Gateway program, in advance of the Power and Propulsion Element (PPE) project's confirmation review, assesses the solar electric propulsion thrusters' technical risks and determine whether off-ramps - such as reduced requirements for PPE - are needed or whether the project's schedule should be reassessed.

    Status: GAO has requested that this Recommendation be kept open until they receive the results from Gateway's KDP-1 (reference e-mail traffic with GAO on 12 July 22 if required). While Gateway plans to be ready for KDP-I by the end of April 2023, it may take longer to complete the full KDP process since it depends on scheduling at both the ACD and Agency levels.

    Office of Primary Responsibility: Exploration Systems Mission Directorate

    Target Completion Date: 6/30/2023

34. **Report: Federal Contracting: Senior Leaders Should Use Leading Companies' Key Practices to Improve Performance** (GAO-21-491; 7/27/2021)

    Recommendation: (1) The Administrator of NASA should ensure the NASA SPE uses a balanced set of performance metrics to manage the agency's procurement organizations, including outcome-oriented metrics to measure (a) cost savings/avoidance, (b) timeliness of deliveries, (c) quality of deliverables, and (d) end user satisfaction.

    Status: Under the Enterprise Service and Analysis Division, the Office of Procurement (OP) established the E-Business Systems Office. The office has cognizance over the NASA Contract Writing System and other E-Business systems that enable the acquisition

workforce at NASA, internal and external websites, all efforts to define and govern data (standardization and analysis) that will be used to manage OP services, and the creation of Procurement Dashboards, metrics, and other analytical data tools, that will provide greater insight into the procurement function across the enterprise.

Office of Primary Responsibility: Office of Procurement

Target Completion Date: 3/10/2023

Non-Concurrences

35. **Report: NASA Information Technology: Urgent Action Needed to Address Significant Management and Cybersecurity Weaknesses** (GAO-18-337; 5/22/2018)

    Recommendation: (3) The Administrator should direct the Chief Information Officer address, in conjunction with the Chief Human Capital Officer, gaps in IT workforce planning by fully implementing the eight key IT workforce planning activities noted in this report.

    Office of Primary Responsibility: Office of the Chief Information Officer

    Target Completion Date: n/a

36. **Report: NASA LUNAR PROGRAMS: Significant Work Remains, Underscoring Challenges to Achieving Moon Landing in 2024** (GAO-21-330; 5/26/2021)

    Recommendation: (1) The NASA Administrator, in coordination with the Associate Administrator for the Science Mission Directorate, should ensure the Volatiles Investigating Polar Exploration Rover (VIPER) project office include relevant development costs from the Resource Prospector project and the cost of the Commercial Lunar Payload Services task order for the delivery of VIPER to the lunar surface into its cost baseline.

    Office of Primary Responsibility: Office of the Chief Human Capital Officer

    Target Completion Date: n/a

Appendix B
GAO Recommendations Closed but Not Implemented (Detail)

1. **Report: Cybersecurity Workforce - Agencies Need to Improve Baseline Assessments and Procedures for Coding Positions** (GAO-18-466; 6/14/2018)

   Recommendation: (1) The Administrator of the National Aeronautics and Space Administration should evaluate the level of preparedness for cybersecurity personnel not currently holding professional certifications to take certification exams and report this information to Congress.

   Status: NASA does not believe that action to secure professional certifications for cybersecurity personnel who do not hold certifications is necessary. The OCIO monitors the preparedness of its cybersecurity workforce on an ongoing basis and takes timely action to provide the appropriate training to staff when there is a requirement to close gaps in skills, which may include the need for a professional certification. Therefore, we will not be taking action to ensure that all cybersecurity staff have professional certifications.

   Office of Primary Responsibility: Office of the Chief Human Capital Officer

2. **Report: NASA COMMERCIAL CREW PROGRAM: Plan Needed to Ensure Uninterrupted Access to the International Space Station** (GAO-18-476; 7/11/2018)

   Recommendation: (1) The NASA Administrator should develop and maintain a contingency plan for ensuring a presence on the ISS until a Commercial Crew Program contractor is certified.

   Comments: NASA provides quarterly Congressional reports in accordance with the Explanatory Statement accompanying the Fiscal Year 2015 Consolidated and Further Continuing Appropriations Act (P.L. 113-235) which includes a NASA qualitative statement regarding milestone schedules. However, NASA is assessing its schedule process and frequency for releasing flight test and post-certification mission dates to provide the latest schedules as timely as practicable.

   Office of Primary Responsibility: Human Exploration and Operations Mission Directorate

3. **Report: NASA COMMERCIAL CREW PROGRAM: Plan Needed to Ensure Uninterrupted Access to the International Space Station** (GAO-19-377; 6/19/2019)

   Recommendation: (2) Ensure that the NASA Administrator for Human Exploration and Operations direct the Orion program to update its cost estimate to reflect its committed EM-2 baseline date of April 2023.

   Comments: The program has experienced delays and extended the forecasted launch date beyond the April 2023 baseline and there is no longer an opportunity to complete this recommendation.

Office of Primary Responsibility: Human Exploration and Operations Mission Directorate

Appendix C
OIG Recommendations Open More Than One Year (Detail)

Actions Completed

1. **Report: NASA's Heliophysics Portfolio** (IG-19-018; 5/7/2019)

   Recommendation: (3) To improve NASA's management of its heliophysics portfolio, we recommended the Associate Administrator for Science Mission Directorate direct the HPD Director to: reassess HPD's capabilities and resources and update the 2014 Roadmap for implementing 2013 Decadal recommendations with expected completion dates based on the Division's updated budget and priorities over the next 5 years.

   Status: NASA Action Completed.

   Office of Primary Responsibility: Science Mission Directorate

   Target Completion Date: n/a

2. **Report: Management of NASA's Europa Mission** (IG-19-019; 5/29/2019)

   Recommendation: (9) The OIG also recommends the Associate Administrator for Science Mission Directorate in coordination with the Office of the General Counsel: Reassess the process of isolating key project personnel from instrument selection to balance their additional insight in integration and cost estimation while maintaining fairness in the announcement and mitigating conflicts of interest risks.

   Status: NASA Action Completed.

   Office of Primary Responsibility: Science Mission Directorate

   Target Completion Date: n/a

3. **Report: NASA's Planetary Science Portfolio** (IG-20-023; 9/16/2020)

   Recommendation: (9) In coordination with CLPS contracting personnel, establish procedures for evaluation, periodic re-evaluation, and monitoring of current and prospective CLPS contractors' past performance and financial capabilities risk, and steps to mitigate those risks when applicable.

   Status: NASA Action Completed.

   Office of Primary Responsibility: Science Mission Directorate

   Target Completion Date: n/a

4. **Report: NASA's Management of Its Acquisition Workforce** (IG-21-002; 10/27/2020)

   Recommendation: (4) Take action to ensure that active CORs that have not met continuous learning requirements are removed from their COR position in a timely manner.

Status: NASA Action Completed.

Office of Primary Responsibility: Office of Procurement

Target Completion Date: n/a

5. **Report: NASA's Management of the Gateway Program for Artemis Missions** (IG-21-004; 10/1/2020)

   Recommendation: (1) Baseline the Gateway requirements and specifications in contract modifications prior to updating and awarding the PPE and HALO fixed-price contracts.

   Status: NASA Action Completed.

   Office of Primary Responsibility: Exploration Systems Mission Directorate

   Target Completion Date: n/a

6. **Report: NASA's Management of the Gateway Program for Artemis Missions** (IG-21-004; 10/1/2020)

   Recommendation: (6) Take action to enforce NASA policy to definitize contracts within 6 months of award.

   Status: NASA Action Completed.

   Office of Primary Responsibility: Exploration Systems Mission Directorate

   Target Completion Date: n/a

7. **Report: NASA's Efforts to Mitigate the Risks Posed by Orbital Debris** (IG-21-011; 1/27/2021)

   Recommendation: (4) Prioritize obtaining direct measurements needed to fill the 3 mm and smaller sized debris gap at the 600 to 1,000 km altitude in LEO.

   Status: NASA Action Completed

   Office of Primary Responsibility: Science Mission Directorate

   Target Completion Date: n/a

8. **Report: NASA's Efforts to Mitigate the Risks Posed by Orbital Debris** (IG-21-011; 1/27/2021)

   Recommendation: (5) Explore alternative orbital debris radar assets to fill the data gaps caused by the increased costs of utilizing existing radars and the loss of legacy assets.

   Status: NASA Action Completed.

Office of Primary Responsibility: Office of Safety and Mission Assurance

Target Completion Date: n/a

9. **Report: NASA's Management of the Artemis Missions** (IG-22-003; 11/5/2021)

   Recommendation: (8) Validate that the annual synchronization reviews meet the intent and expectations of the milestone reviews replaced by the tailored acquisition approach.

   Status: NASA Action Completed.

   Office of Primary Responsibility: Chief Program Management Officer

   Target Completion Date: n/a

10. **Report: NASA's Cybersecurity Readiness** (IG-21-019; 5/18/2021)

    Recommendation: (3) Evaluate the optimal organizational placement of the Enterprise Architect and Enterprise Security Architect during and after MAP implementation to improve cybersecurity readiness.

    Status: NASA Action Completed. MAP resulted in the stand-up of the Strategy and Architecture Office (SAO); an Agency-Level Office under the Strategy Division, which reports directly to the NASA CIO. The Agency's Chief Enterprise Architect is also the Chief of SAO, and after negotiation with the Director of CSPD, which is led by the Agency's Senior Agency Information Security Officer and is a direct report to the NASA CIO, it was determined that the Enterprise Cybersecurity Architect would be a member of SAO with matrixed responsibilities to CSPD and its subordinate organizations.

    Office of Primary Responsibility: Office of the Chief Information Officer

    Target Completion Date: n/a

11. **Report: NASA's Management of Next-Generation Spacesuits** (IG-21-025; 8/10/2021)

    Recommendation: (1) To the extent that the schedule for Artemis III is extended beyond 2024, adjust the xEVA System schedule as appropriate to reduce development risks. For example, this could include a. ensuring at least the first two xEMU flight suits can also be used for ISS priorities, b. reducing the risk of concurrency in development of xEMU testing and qualification suits, and/or c. baselining the xEVA system schedule and ensuring the schedule incorporates margin and factors in the high likelihood of unrealized schedule risks.

    Status: NASA Action Completed.

    Office of Primary Responsibility: Exploration Systems Mission Directorate

    Target Completion Date: n/a

12. **Report: NASA's Management of Next-Generation Spacesuits** (IG-21-025; 8/10/2021)

Recommendation: (2) Develop an integrated master schedule to incorporate and align the hardware deliveries and training needs of the dependent programs—Gateway, ISS, and HLS—and the Flight Operations Directorate.

Status: NASA Action Completed.

Office of Primary Responsibility: Exploration Systems Mission Directorate

Target Completion Date: n/a

13. **Report: NASA's Construction of Facilities** (IG-21-027; 9/8/2021)

Recommendation: (3) In coordination with the Mission Directorates, institute a process to ensure facility requirements are identified and funding sources are specified during a program's development and implementation phases.

Status: NASA Action Completed. Office of Strategic Infrastructure (OSI) has established the Strategic Infrastructure Board (SIB), in which its purpose is to serve as a decision-making body for executing the mission of OSI. The SIB will ensure stakeholder engagement as OSI assesses and manages enterprise risks, develops and approves strategies, and determines requirements to enable the successful support of the Agency's mission across the enterprise.

Office of Primary Responsibility: Office of Strategic Infrastructure

Target Completion Date: n/a

14. **Report: NASA's Construction of Facilities** (IG-21-027; 9/8/2021)

Recommendation: (4) Reexamine policies regarding oversight of the CoF program to identify alternative approaches to more effectively oversee the program.

Status: NASA Action Completed. OSI/Facilities and Real Estate Division has reorganized and augmented with a Design, Construction, and Demolition (DCD) Branch. The DCD branch is charged with the responsibility for the insight and oversight of all ongoing Construction of Facilities (CoF) projects.

Office of Primary Responsibility: Office of Strategic Infrastructure

Target Completion Date: n/a

15. **Report: NASA's Management of the Artemis Missions** (IG-22-003; 11/5/2021)

Recommendation: (5) Definitize outstanding Artemis-related contracts within 180 days in accordance with NASA FAR Supplement 1843.7005(a), Definitization (2018).

Status: NASA Action Completed.

Office of Primary Responsibility: Exploration Systems Mission Directorate

Target Completion Date: n/a

Actions In-Progress

16. **Report: Review of NASA's Computer Security Incident Detection and Handling Capability** (IG-12-017; 8/7/2012)

    Recommendation: (2) Develop more detailed procedures for transferring incident detection responsibility to the NASA Centers in the event of a SOC disruption.

    Status: Completed full assessment of all customer-facing and internal support services, identifying services currently capable of running at either SOC Infrastructure core location (ARC/JSC) and service gaps. To date, six of 11 customer-facing services and 8 of 12 internal support services are currently capable of running at either core location. Procurements from Fiscal Year (FY) 2021 and 2022, and pending concurrence for 2023 procurements, will provide the remaining refreshed network, compute, storage, and backup infrastructure necessary to implement full distributed operations. While the Initiatives necessary to complete this effort by the anticipated 8/30/2023 date remain a high priority, three major contract transitions over 22 months have resulted in significant personnel restructure and shortfalls, necessitating an informed and shifting balance of operation and sustainment activities with competing Projects and Initiatives.

    Office of Primary Responsibility: Office of the Chief Information Officer

    Target Completion Date: 3/29/2024

17. **Report: Review of NASA's Computer Security Incident Detection and Handling Capability** (IG-12-017; 8/7/2012)

    Recommendation: (3) Ensure that annual exercises simulating loss of the SOC include the transfer of incident detection responsibility to the Centers.

    Status: NASA completed a full assessment of all customer-facing and internal support services, identifying services currently capable of running at either SOC Infrastructure core location (ARC/JSC) and service gaps. To date, six of 11 customer-facing services and 8 of 12 internal support services are currently capable of running at either core location. Procurements from Fiscal Year (FY) 2021 and 2022, and pending concurrence for 2023 procurements, will provide the remaining refreshed network, compute, storage, and backup infrastructure necessary to implement full distributed operations. While the Initiatives necessary to complete this effort by the anticipated 8/30/2023 date remain a high priority, three major contract transitions over 22 months have resulted in significant personnel restructure and shortfalls, necessitating an informed and shifting balance of operation and sustainment activities with competing Projects and Initiatives. Therefore,

the revised ECD has been moved to 03/31/2024. NOTE: Recommendation 2, a Continuity of Operations Plan (COOP), is directly dependent upon the completion of the aforementioned APS, currently targeted for 8/30/2023. Therefore, completion of the COOP is a deliverable associated with the APS and is currently also targeted for 8/30/2023. As mentioned previously, while the Initiatives necessary to complete this effort by the anticipated 8/30/2023 date remain a high priority, three major contract transitions over 22 months have resulted in significant personnel restructure and shortfalls, necessitating an informed and shifting balance of operation and sustainment activities with competing Projects and Initiatives.

Office of Primary Responsibility: Office of the Chief Information Officer

Target Completion Date: 3/29/2024

18. **Report: NASA's Management of Electromagnetic Spectrum** (IG-17-012; 3/9/2017)

Recommendation: (2) The OIG recommend NASA's Associate Administrator for Human Exploration and Operations; incorporate the "Spectrum Guidance for NASA Small Satellite Missions" into formal NASA electromagnetic spectrum policies NPD 2570.5E, "NASA Electromagnetic Spectrum Management - Revalidated 9/13/16," and NPR 2570.1C, "NASA Radio Frequency Electromagnetic Spectrum Management Manual."

Status: The update to the NASA Policy Directive (NPD) 2570.5E was completed in May 2022. The Spectrum division is in the process of updating the NASA Procedural Requirements (NPR) 2570.C and route through the NASA Online Directives Information System (NODIS) cycle.

Office of Primary Responsibility: Space Operations Mission Directorate

Target Completion Date: 12/31/2023

19. **Report: NASA's Management of Electromagnetic Spectrum** (IG-18-015; 4/5/2018)

Recommendation: (8) To the extent practicable, implement the GAO's best practices for establishing partnerships, including the formalization of agreements that outline the roles and responsibilities of each agency in the performance and application of climate research performed at GISS.

Status: Goddard Institute for Space Studies' **(**GISS's) roles and responsibilities for climate research, especially climate modeling, are closely coordinated with other federal agencies, most notably through the US Global Change Research Program's Interagency Group on Integrative Modeling (IGIM) which brings together the agencies with programs in climate-related Earth system modeling. In particular, the IGIM organizes the annual Climate Modeling Summit, in which the six major modeling activities led by the US government come together to address issues of common interest and concern and focus on a topic of particular interest in any given year. Note also that as part of our periodic peer review process (on a ~ 5-year basis) we have asked GISS to develop a plan for its

next five years of climate modeling research (Model E and its evolution), and this plan has been received and will be going out for external peer review. As part of the plan that they developed, the relationship of the GISS modeling effort to those of its interagency partners is explained. Other climate-related work done at GISS outside of climate modeling is reviewed through the peer review process (for individual investigator research proposals submitted in response to elements in our annual Research Opportunities for Space and Earth Science" or through periodic review of the Climate Impacts effort under the Internal Scientist Funding Model for work directed to NASA centers.

Office of Primary Responsibility: Science Mission Directorate

Target Completion Date: 9/30/2023

20. **Report: Audit of NASA's Historic Property** (IG-19-002; 10/22/2018)

Recommendation: (2) To improve NASA's identification and management of heritage assets, the OIG recommends that the Assistant Administrator for Strategic Infrastructure, in coordination with the Associate Administrator for Communications: Develop comprehensive procedures for identifying and managing heritage assets, including defining roles and responsibilities for the different NASA entities responsible for evaluating what historic items would most effectively be maintained by the Agency and considered as heritage assets.

Status: NASA is in the process of developing new NPD/NPR for dealing with Heritage Assets and should have those in place by FY24. In January 2023, representatives from NASA OCOMM, OCIO, OCFO, and OSI met to discuss next steps for those policy documents.

Office of Primary Responsibility: Office of Communications

Target Completion Date: 12/1/2023

21. **Report: Audit of NASA's Historic Property** (IG-19-002; 10/22/2018)

Recommendation: (3) To improve NASA's identification and management of heritage assets, the OIG recommends that the Assistant Administrator for Strategic Infrastructure, in coordination with the Associate Administrator for Communications: Evaluate and justify the existing list of NASA and contractor held heritage assets to determine whether NASA is the most effective owner and what property the Agency will retain because of its historical value.

Status: We are in the process of developing new NPD/NPR for dealing with Heritage Assets and should have those in place by FY24. In January 2023, representatives from NASA OCOMM, OCIO, OCFO, and OSI met to discuss next steps for those policy documents.

Office of Primary Responsibility: Office of Communications

Target Completion Date: 12/1/2024

22. **Report: Audit of NASA's Historic Property** (IG-19-002; 10/22/2018)

Recommendation: (5) To improve the use of funds generated from National Historic Preservation Act (NHPA) leases, the OIG recommends the Assistant Administrator for Strategic Infrastructure: Ensure NASA policy and procedures for using the proceeds from facilities leased under NHPA authority appropriately aligns with Agency goals to minimize excess facilities.

Status: OSI is currently re-writing NPR 8800 to address this recommendation. It is anticipated that it the re-write and NODIS process will be completed by August 30, 2023

Office of Primary Responsibility: Office of Strategic Infrastructure

Target Completion Date: 8/30/2023

23. **Report: NASA's Engineering and Technical Services Contracts** (IG-19-014; 3/26/2019)

Recommendation: (1) NASA's Assistant Administrator for Procurement: Develop an Agency-wide standardized set of metrics for contracts that can be collected, tracked, and analyzed over time to identify efficiencies resulting from a change in contract structure.

Status: The legacy system, Master Buy, was retired and replaced by PALT+. Due to the system transition and data integrity from the Centers, the Office of Procurement is still working to standardize metrics. The recommendation is still on track for closure in 2023.

Office of Primary Responsibility: Office of Procurement

Target Completion Date: 4/28/2023

24. **Report: NASA's Engineering and Technical Services Contracts** (IG-19-014; 3/26/2019)

Recommendation: (2) NASA's Assistant Administrator for Procurement: Require Center Procurement Offices to formally collect, track, and report data to the Headquarters Office of Procurement on these metrics at least annually.

Status: The legacy system, Master Buy, was retired and replaced by PALT+. Due to the system transition and data integrity from the Centers, the Office of Procurement is still working to standardize metrics. The recommendation is still on track for closure in 2023.

Office of Primary Responsibility: Office of Procurement

Target Completion Date: 4/28/2023

25. **Report: NASA's Security Management Practices** (IG-20-001; 10/21/2019)

Recommendation: (4) Evaluate Agency-wide jurisdictions to determine if it is feasible for all Centers to be under the same jurisdiction or at least to determine if individual Centers should have all of their property under the same type of jurisdiction.

Status: Stennis Space Center has determined that it would be beneficial to change from their current "Proprietary Jurisdiction" to "Concurrent Jurisdiction." This request was made through the Mississippi State Government prior to the departure of the Governor during the pandemic in 2020. No action was taken at that time. The package will need to be redeveloped and resubmitted in coordination with the Office of General Counsel to the new Governor.

Ames Research Center (ARC) has determined that changing from their current "Federal Exclusive Jurisdiction" to "Concurrent Jurisdiction" would be beneficial. However, with the extensive NASA Research Park Housing Development and the University of California, Berkley Campus project that are currently underway, this cannot be fully determined until project completion.

Office of Primary Responsibility: Office of Protective Services

Target Completion Date: 12/31/2024

26. **Report: NASA's Security Management Practices** (IG-20-001; 10/21/2019)

Recommendation: (5) Coordinate with the Office of the General Counsel to standardize the carrying of firearms by NASA civil servants in an Agency-wide policy while also addressing the appropriate situations when NASA contractors may carry their government-issued weapons off NASA property.

Status: As reported to NASA's Mission Support Council, the Office of Protective Services is forecasting "GREEN" for accomplishment of the action to finalize the written qualifications and fitness for duty standards for NASA civil servant sworn Federal Officers/Special Agents (SA) agency-wide. When the standards have been finalized, they will be incorporated into the applicable PD's and further codified into Agency-wide policy (update to NPR 1600.1).

NASA has endorsed and sent forward to the Office of Management and Budget (OMB) the legislative proposal created by Office of Protective Services (OPS) every year since 2018, and it has yet to be enacted into law. For the 2022 cycle, NASA and OPS once again resubmitted the legislative proposal for consideration by the 117th Congress of the United States but once again, it was not enacted. We will resubmit for the 2023 cycle.

Office of Primary Responsibility: Office of Protective Services

Target Completion Date: 2/28/2024

27. **Report: NASA's Management of Crew Transportation to the International Space Station** (IG-20-005; 11/14/2019)

Recommendation: (2) Correct identified safety-critical technical issues before the crewed test flights, including parachute and propulsion systems including launch abort systems testing to ensure sufficient safety margins exist.

Status: NASA is awaiting the Boeing certification in order to close this recommendation.

Office of Primary Responsibility: Space Operations Mission Directorate

Target Completion Date: 7/31/2023

28. **Report: NASA's Management of Distributed Active Archive Centers** (IG-20-011; 3/3/2020)

Recommendation: (1) NASA's Associate Administrator for Science Mission Directorate: in conjunction with ESDIS, once SWOT and NISAR are operational and providing sufficient data, complete an independent analysis to determine the long-term financial sustainability of supporting the cloud migration and operation while also maintaining the current DAAC footprint.

Status: NASA is currently working towards closing this recommendation and still on track to provide closure in 2024.

Office of Primary Responsibility: Science Mission Directorate

Target Completion Date: 3/31/2024

29. **Report: NASA's Management of Space Launch System Program Costs and Contracts** (IG-20-012; 3/10/2020)

Recommendation: (2) Review HEOMD and NASA program management policies, procedures, and ABC reporting processes to provide greater visibility into current, future, and overall cost and schedule estimates for the SLS Program and other human space flight programs.

Status: Both the SLS and EGS programs successfully completed an independently reviewed Operational Readiness Review (ORR). More recently, in 2022, these programs brought the ORR data forward to reach Key Decision Point E (KDP-E), effectively transitioning these programs into the operations phase of their lifecycle for the SLS Block 1 and EGS ML-1 configuration. Completion of KDP-E requires the programs to provide an initial capability estimate to the Chief Financial Officer, as well as a five-year estimate for operational costs that are distinct from any ongoing development projects or upgrades. Both programs completed their initial capability and five-year estimates based on the content featured in the FY23 Program Planning, Budgeting, and Execution (PPBE) cycle. The five-year estimate will be updated yearly as part of the PPBE process

Office of Primary Responsibility: Exploration Systems Mission Directorate

Target Completion Date: 3/31/2023

30. **Report: NASA's Management of Space Launch System Program Costs and Contracts** (IG-20-012; 3/10/2020)

> **Recommendation:** (2b) This review shall include: b. establishing methodologies and processes to track and set cost commitments for Artemis II.

> **Status:** Both the SLS and EGS programs successfully completed an independently reviewed Operational Readiness Review (ORR). More recently, in 2022, these programs brought the ORR data forward to reach Key Decision Point E (KDP-E), effectively transitioning these programs into the operations phase of their lifecycle for the SLS Block 1 and EGS ML-1 configuration. Completion of KDP-E requires the programs to provide an initial capability estimate to the Chief Financial Officer, as well as a five-year estimate for operational costs that are distinct from any ongoing development projects or upgrades. Both programs completed their initial capability and five-year estimates based on the content featured in the FY23 PPBE cycle. The five-year estimate will be updated yearly as part of the PPBE process.

> **Office of Primary Responsibility:** Exploration Systems Mission Directorate

> **Target Completion Date**: 3/31/2023

31. **Report: NASA's Management of Space Launch System Program Costs and Contracts** (IG-20-012; 3/10/2020)

> **Recommendation:** (2c) This review shall include: c. determining reporting and tracking procedures for setting cost and schedule commitments, and monitoring progress throughout the entire life cycle of the SLS Program (through at least 2030).

> **Status:** NASA has re-examined and revised its lifecycle review policies to ensure greater transparency into cost tracing and estimating and enhance existing reporting practices for external stakeholders. Progress has been made for all major programs, particularly the SLS, within the CESD division.

> In September 2021, SLS successfully completed an independently reviewed ORR. More recently, SLS brought the ORR data forward to the Decisional Authority (NASA Associate Administrator) to reach Key Decision Point E (KDP-E), effectively transitioning into the operations phase of their lifecycle for the SLS Block 1. Completion of KDP-E requires the programs to provide an initial capability estimate to the Chief Financial Officer, as well as a five-year estimate for operational costs that are distinct from any ongoing development projects or upgrades. SLS completed its initial capability and five-year estimate based on the content featured in the FY23 PPBE cycle. The five-year estimate will be updated yearly as part of the PPBE process.

> To finalize procedures that will monitor the SLS program into 2030 and beyond, the agency is in the process of establishing a cost and schedule baseline commitment for the SLS Block IB Exploration Upper Stage and Associated Capabilities. The SLS Exploration Upper Stage and associated capabilities commitment is anticipated to be established in the summer of 2022; an update on the SLS EUS and associated capabilities

commitment will be provided as soon as finalized and closure of this recommendation will be sought at that time.

Office of Primary Responsibility: Exploration Systems Mission Directorate

Target Completion Date: 3/31/2023

32. **Report: Audit of NASA's Development of Its Mobile Launchers** (IG-20-013; 3/17/2020)

> **Recommendation:** (3) Ensure life-cycle and milestone reviews incorporate programmatic and technical risks and are conducted with the Associate Administrator for Human Exploration and Operations Directorate and other senior Agency officials.
>
> **Status:** CESD is in the process of establishing Agency Baseline Commitments for both the SLS Exploration Upper Stage and Associated Capabilities, and the EGS Mobile Launcher 2, both of which are set to fly on Artemis IV.
>
> **Office of Primary Responsibility:** Exploration Systems Mission Directorate
>
> **Target Completion Date**: 12/31/2023

33. **Report: Audit of NASA's Development of Its Mobile Launchers** (IG-20-013; 3/17/2020)

> **Recommendation:** (4) Require the ML-2 project to develop an ABC separate from the EGS Program.
>
> **Status:** CESD is in the process of establishing an Agency Baseline Commitment for the EGS Mobile Launcher 2.
>
> **Office of Primary Responsibility:** Exploration Systems Mission Directorate
>
> **Target Completion Date**: 12/31/2023

34. **Report: NASA's Compliance with the Improper Payments Information Act for Fiscal Year 2019** (IG-20-016; 4/10/2020)

> **Recommendation:** (2) In accordance with OMB guidance, obtain a statistically valid estimate of the annual amount of improper payments in the SLS program for reporting in the FY 2020 AFR, and complete the associated required reporting.
>
> **Status:** The Agency completed a review of SLS disbursements in FY2021. This encompassed an assessment of $2.2 billion in program outlays. The results yielded a 100 percent payment accuracy rate, and a zero improper payments amounts and rates and zero unknown payment amounts and rates. Given that the improper payment amount is $0 and improper payment and unknown payment rate is zero, there were no direct recommendations made by the OIG or actions taken to further improve prevention and reduction of IPs and UPs within SLS. Ironically, the OIG found the Agency non-compliant for not reporting the results in its FY2021 review on SLS. The OIG noted, the Agency should have submitted SLS related data such as the $2.2 billion in program

outlays and amount properly paid, the 100 percent payment accuracy rate, and the corresponding zero improper and zero unknown payment amounts and rates that were the result of their FY 2021 review of FY 2019 payments. The Agency has reported the results of the SLS statistical testing and the IP and UP rate as a part of the FY 2022 year end reporting. There are no further actions for the Agency to take on this recommendation.

Office of Primary Responsibility: Office of the Chief Financial Officer

Target Completion Date: 6/30/2023

35. **Report: NASA's Management of the Orion Multi-Purpose Crew Vehicle Program** (IG-20-018; 7/16/2020)

> **Recommendation:** (2) To the extent practicable, adjust the production schedules for Artemis IV and V to better align with the successful demonstration of Artemis II to reduce schedule delays associated with potential rework.
>
> **Status:** CESD is in the process of establishing Agency Baseline Commitments for both the SLS Exploration Upper Stage and Associated Capabilities, and the EGS Mobile Launcher 2, both of which are set to fly on Artemis IV.
>
> **Office of Primary Responsibility:** Exploration Systems Mission Directorate
>
> **Target Completion Date**: 12/31/2023

36. **Report: NASA's Planetary Science Portfolio** (IG-20-023; 9/16/2020)

> **Recommendation:** (2) In coordination with the Office of Chief Financial Officer, engage relevant Centers and technical capability leaders to identify budgetary and accounting system solutions within the current budgetary and full cost accounting system to adequately fund and sustain critical technical discipline capabilities needed to support current and future projects.
>
> **Status:** A review of the documentation to date indicates the OIGs outstanding concern relates to full cost accounting implementation; specifically cost pools and/or best practices for charging programs and projects.
>
> SMD (Science Mission Directorate) is working with OCFO to identify OCFO officials to any current or past efforts to develop best practices regarding full cost accounting applications for NASA activities. SMD will need to solicit a response to OIG from with CFO and ensure CFO address OIGs outstanding concerns.
>
> **Office of Primary Responsibility:** Science Mission Directorate
>
> **Target Completion Date**: 7/30/2023

37. **Report: NASA's Management of the Gateway Program for Artemis Missions** (IG-21-004; 10/1/2020)

Recommendation: (2) Ensure PPE and HALO delivery and launch dates are realistic by including sufficient schedule margin in their development schedules.

Status: Probabilistic schedule risk analyses are being performed in support of the Gateway Program's planned readiness for KDP-I by the end of April 2023. Please note, however, that it may take longer to complete the full KDP process since it will depend on scheduling at both the ACD and Agency levels.

Office of Primary Responsibility: Exploration Systems Mission Directorate

Target Completion Date: 6/30/2023

38. **Report: NASA's Management of the Gateway Program for Artemis Missions** (IG-21-004; 10/1/2020)

Recommendation: (3) Develop a HEOMD policy that establishes a reasonable amount of recommended schedule margin by phase of program or project.

Status: NASA anticipates closure of this recommendation with the baselining of the Formulation Guide. The ESDMD Technical Integration Office continues to update the Guide as well as revising internal reviews before putting the document into the CR process. The Formulation Guide is planned to begin the CR process in October with board approval anticipated early 2023.

Office of Primary Responsibility: Exploration Systems Mission Directorate

Target Completion Date: 3/31/2023

39. **Report: Audit of NASA's Compliance with the Geospatial Data Act** (IG-21-001; 10/2/2020)

Recommendation: (2) Develop a unified Strategy Implementation Plan or "Roadmap" that defines detailed action items, milestones, and responsibilities for geospatial data management in support of missions across NASA.

Status: The OCIO is actively seeking a Chief Data Officer replacement who also serves as the Agency Senior Agency Official for Geospatial Information (SAOGI). OCIO and the SMD will collaborate on the development of a unified geospatial data management plan across NASA. The Office of Legislative & Intergovernmental Affairs is assisting in the effort to ensure alignment with Geospatial Data Act of 2018 and Federal Geographic Data Committee objectives. Work in this area is connected to a related audit recommendation on IG-23-001 (NASA's Compliance with the Geospatial Data Act for Fiscal Year 2022).

Office of Primary Responsibility: Office of the Chief Information Officer

Target Completion Date: 9/30/2024

40. **Report: NASA's Management of Its Acquisition Workforce** (IG-21-002; 10/27/2020)

Recommendation: (1) Finalize and fully implement the performance metrics dashboard to measure acquisition performance.

Status: NASA is currently working towards closing this recommendation and still on track to provide closure in 2023.

Office of Primary Responsibility: Office of Procurement

Target Completion Date: 12/1/2023

41. **Report: NASA's Management of Its Acquisition Workforce** (IG-21-002; 10/27/2020)

Recommendation: (2) Document contract assignments to COs, CORs, and program/project managers in a centralized system for inclusion in the performance metrics dashboard.

Status: Research was conducted and determined that this information is not readily available. OP does not currently have an existing system to obtain the information in order to link the assignment of COs, CORs and P/PMs at the contract level. P/PM (161 total P/PMs) information is collected by Program level and through a currency review some but not all contract data was collected. This effort will require tremendous outreach and the manual coordination and collection of data that would likely be largely inconsistent for 3500 CORs and several hundred COs. This was a suggestion by the IG, and they noted that they did not want OP to incur a significant investment of resources, if the information and capability was not readily available.

Office of Primary Responsibility: Office of Procurement

Target Completion Date: 12/1/2023

42. **Report: NASA's Management of Hazardous Materials** (IG-21-006; 12/3/2020)

Recommendation: (5) Assess various options for development and implementation of an Agency-wide hazardous materials information system that tracks hazardous materials throughout the life cycle, and ensure processes are in place to consistently maintain a complete and accurate inventory.

Status: NASA assessed the potential of an Agency-wide hazardous materials information system (HMIS). An Agency-wide snapshot of HMIS and hazardous materials (HM) management processes was developed in collaboration with HM personnel at centers and facilities, and current HMIS and HM management practices were evaluated for opportunities to improve HM inventory management. OSI is continuing to work in collaboration with the Office of the Chief Information Officer to explore the potential of and options for an Agency-wide HMIS that will include the scope of each option and how it compares to existing center practices, an evaluation of the strengths and weaknesses of each option, and the risks of adopting an Agency-wide solution. We anticipate completing the work by mid-2023.

Office of Primary Responsibility: Office of Strategic Infrastructure

Target Completion Date: 12/31/2022

43. **Report: NASA's Management of Hazardous Materials** (IG-21-006; 12/3/2020)

    Recommendation: (7) Require Center Directors to inspect and replace, as required, laboratory hazardous material storage structures and improve shelters that do not meet CDC or Agency requirements.

    Status: (1) A NASA Interim Directive (NID) (NID 8715.140 – "Safety Policy Regarding Hazardous Chemicals") was developed and implemented on March 2022. The NID establish requirements for the Centers to properly storage, inspect and handle hazardous materials. The NID will be incorporated into the NASA NPR 8715.1 in the next update between 2023-2024.

    (2) Personnel from OCHMO and Office of Safety and Mission Assurance had been visiting the Centers to review their compliance with the new NID and to determine if there are any issues to comply with the new requirements.

    Office of Primary Responsibility: Office of Safety and Mission Assurance

    Target Completion Date: 10/1/2023

44. **Report: NASA's Efforts to Mitigate the Risks Posed by Orbital Debris** (IG-21-011; 1/27/2021)

    Recommendation: (1) Lead national and international collaborative efforts to mitigate orbital debris including activities to encourage active debris removal and the timely end-of-mission disposal of spacecraft.

    Status: NASA's role within the executive branch is established by a combination of direction from Congress in law and implementing policy direction from the Administration. At present, there is no Administration direction to NASA for leading national and international collaborative efforts to encourage active debris removal. The Agency does not have a legislative or mission requirement to lead such efforts. Consistent with guidance in Space Policy Directive 3 (SPD-3), the National Space Traffic Management Policy, NASA led the interagency effort to update the U.S. Government (USG) Orbital Debris Mitigation Standard Practices (ODMSP). The 2019 ODMSP update includes improvements to the original standard practices which are significant, meaningful, and achievable with quantified parameters and preferred options; as well as clarifications and additional traditional practices for certain classes of space operations, such as flying large constellations of space vehicles, rendezvous and proximity operations, satellite servicing, and operating small satellites. The new standard practices established in the update include the 2 preferred disposal options for immediate removal of structures from the near-Earth space environment. By establishing guidelines for USG activities, the 2019 ODMSP provides a reference to promote efficient and effective space safety practices for other domestic and international operators.

    Office of Primary Responsibility: Office of International and Interagency Relations

Target Completion Date: 6/30/2023

45. **Report: NASA's Efforts to Mitigate the Risks Posed by Orbital Debris** (IG-21-011; 1/27/2021)

> **Recommendation:** (2) Collaborate with Congress, other federal agencies, and partners from the private and public sectors to adopt national and international guidelines on active debris removal and strategies for increasing global compliance rates for timely removal of spacecraft at the end of a mission.

> **Status:** NASA collaboration with Congress and others is governed by Administration policy and direction. NASA collaborates with partner agencies within the executive branch as well as with other stakeholders concerning orbital debris issues. NASA reports to Congress on these efforts. Related to the NASA response to Recommendation 1 regarding the 2019 update of the USG ODMSP, the Agency engages in systematic efforts, led by the Department of State, to increase international support for adhering to guidelines to mitigate orbital debris, including timely disposal of spacecraft at the end of mission. Specifically, NASA continues to share the ODMSP broadly, including: in February 2020 - presentation on SPD-3, the National Space Traffic Management Policy, and the ODMSP at the Scientific and Technical Subcommittee of the United Nations Committee on the Peaceful Uses of Outer Space; in February 2020 - NASA Orbital Debris Quarterly News highlighted the ODMSP; and in April 2020 - during a virtual session of the Inter-Agency Space Debris Coordination Committee (IADC), the international technical forum on debris, provided e-mail copies of the updated 2019 USG ODMSP which is located on the IADC Web site.

> **Office of Primary Responsibility:** Office of International and Interagency Relations

> **Target Completion Date**: 6/30/2023

46. **Report: NASA's Efforts to Mitigate the Risks Posed by Orbital Debris** (IG-21-011; 1/27/2021)

> **Recommendation:** (3) Invest in methods and technologies for removing defunct spacecraft. As part of this effort, conduct a study evaluating the technical merit and cost to investing in active debris removal systems and technologies.

> **Status:** Space Technology Mission Directorate (STMD) continues to invest in Active Debris Removal (ADR) including technologies for de-orbit, de-tumble, de-spin, close relative navigation software or hardware capability, disposal acceleration devices, salvage, recycling, reusing into useful material for manufacturing or fuel.

> In addition, STMD invests in crosscutting technologies which are applicable to both ADR and Servicing & Assembly. These may include technologies for rendezvous, proximity operations, and capture (RPOC), external robotic manipulation systems (grippers, dexterous manipulation, software, free-flying robots), and sensors for RPOC and robotics.

In FY21, STMD made 21 separate investments in these areas for a total of 8.6 million and in FY22 STMD made 18 investments in ADR technology for a total of 7 million. (pulled from August Orbital Debris report) These investments continue into FY2023. In parallel, NASA STMD has initiated new investments in 2022 and 2023 applicable to debris removal, including:

1) Remediation of small debris: Prizes, Challenges, and Crowdsourcing Program "Small Orbital Debris Challenge" soliciting ideas on how to detect, track, and remove space debris 10 centimeters and smaller.

2) Removal of large debris: SBIR Ignite Topic "Commercial Development of ADR Services" (two Phase I awardees selected in 2022. Phase II proposals due in FY23).

The NASA Office of Technology, Policy and Strategy is currently conducting an ADR cost benefit analysis. This study provides estimates of economic risks imposed on satellite operators by orbital debris and surveys the various methods for debris remediation, providing estimates of the cost to develop and operate remediation missions. The primary goal of this project is to inform the U.S. government's long-term Orbital Debris Research and Development Strategy. When complete, the study will identify the most cost-efficient approaches to remediate orbital debris risks and prioritize promising ADR technologies. STMD will use the results of this effort to inform future investments.

In the meantime, STMD continues with our strategy of investing in promising early-stage concepts and technologies that could alter the landscape for identifying technically and cost-effective, viable orbital debris removal approaches. In 2025, we will reevaluate whether a change in approach is warranted.

Office of Primary Responsibility: Space Technology Mission Directorate

Target Completion Date: 12/31/2025

47. Report: NASA's Cybersecurity Readiness (IG-21-019; 5/18/2021)

Recommendation: (1) Integrate EA and ESA, and develop metrics to track the overall progress and effectiveness of EA.

Status: The development of the NASA Enterprise Architecture (EA) is underway and will be fully integrating NASA's Zero Trust cybersecurity principles (represented in the also under-development Enterprise Security Architecture (ESA)). As NASA's Zero Trust efforts are contained within the Agency's Cybersecurity Improvement Portfolio (CIP), we will be measuring progress of the ESA via the CISA Zero Trust Maturity Model. The CIP, and NASA's Zero Trust journey will be a multi-year endeavor.

Office of Primary Responsibility: Office of the Chief Information Officer

Target Completion Date: 7/31/2025

48. Report: NASA's Cybersecurity Readiness (IG-21-019; 5/18/2021)

Recommendation: (2) Collaborate with the Chief Engineer on strategies to identify and strengthen EA gaps across mission and institutional IT boundaries.

Status: To ensure that we are properly coordinating with the OCE, the Strategy and Architecture Office (SAO) is requesting to have its Enterprise Technology Architect added to OCE's Standards Working Group. In addition, SAO is in the process of formally chartering a NASA Enterprise Architecture Working Group (EA WG).

The NASA EA WG will be chaired by the NASA Chief Enterprise Architect and will develop and maintain the NASA Enterprise Architecture (EA). The NASA EA will support planning and decision-making through documentation and information that provides an abstracted view of the enterprise at various levels of scope and detail. The NASA EA WG will address topics affecting the iterative and continuous process of developing and maintaining the NASA EA, to include infusion of Zero Trust principles as will be articulated through the NASA Enterprise Security Architecture (ESA). The NEA WG will provide advice, counsel, and make recommendations for consideration by the Information Technology Strategy Board (ITSB), relating to maintaining and improving service delivery excellence within NASA.

Office of Primary Responsibility: Office of the Chief Information Officer

Target Completion Date: 9/29/2023

49. **Report: NASA's Cybersecurity Readiness** (IG-21-019; 5/18/2021)

Recommendation: (4) Determine each Center's annual cost for performing independent assessments, including staffing, during the A&A process for NASA's 526 systems.

Status: NASA has awarded the CyPrESS contract for a dedicated enterprise team to manage and perform the security assessments for all NASA systems subject to assessment and authorization. The dedicated enterprise team will have the Centers' annual cost for performing independent assessments for all NASA systems subject to assessment and authorization.

Office of Primary Responsibility: Office of the Chief Information Officer

Target Completion Date: 6/30/2023

50. **Report: NASA's Cybersecurity Readiness** (IG-21-019; 5/18/2021)

Recommendation: (5) Develop baseline requirements in the planned CyPrESS contract for a dedicated enterprise team to manage and perform the assessment process for all NASA systems subject to A&A.

Status: NASA has awarded the CyPrESS contract for a dedicated enterprise team to manage and perform the security assessments for all NASA systems subject to assessment and authorization. The dedicated enterprise team will have the Centers' annual cost for performing independent assessments for all NASA systems subject to assessment and authorization.

Office of Primary Responsibility: Office of the Chief Information Officer

Target Completion Date: 6/30/2023

51. **Report: NASA's Construction of Facilities** (IG-21-027; 9/8/2021)

Recommendation: (1) Develop an integrated master schedule to incorporate and align the hardware deliveries and training needs of the dependent programs—Gateway, ISS, and HLS—and the Flight Operations Directorate.

Status: OSI is currently re-writing NPR 8810 and completing the Agency Master Plan. The re-write and the AMP will address the recommendation.

Office of Primary Responsibility: Office of Strategic Infrastructure

Target Completion Date: 1/31/2024

52. **Report: NASA's Construction of Facilities** (IG-21-027; 9/8/2021)

Recommendation: (2a) Revise NASA Procedural Requirements 8820.2G to: Define and establish parameters for the use of institutional and programmatic CoF funds and establish a cost-sharing method for facilities that will have more than one user.

Status: NASA is currently working on a new NID/NPR to address programmatic & institutional funding for facilities that will have more than one user

Office of Primary Responsibility: Office of Strategic Infrastructure

Target Completion Date: 1/31/2024

53. **Report: NASA's Management of the Artemis Missions** (IG-22-003; 11/5/2021)

Recommendation: (1) Develop a realistic, risk-informed schedule that includes sufficient margin to better align Agency expectations with the development schedule.

Status: The Artemis II IMS is mature with contractor informed schedules and is currently updated through a Schedule Risk Assessment process that is expected to be completed in late summer 2023. Baselining a schedule for Artemis III and IV will also rely on the information from KDP-Cs for both Gateway and HLS which are anticipated to happen June 2023 and April 2023 respectively. Due to these adjustments, initial schedule baseline updates are expected in summer 2023.

Office of Primary Responsibility: Exploration Systems Mission Directorate

Target Completion Date: 9/30/2023

54. **Report: NASA's Management of the Artemis Missions** (IG-22-003; 11/5/2021)

Recommendation: (2) Expand upon the existing draft Artemis IMS to include Artemis programs outside AES and ESD to properly align dependencies across directorates.

Status: The Artemis Campaign Planning Manifest (ACPM) is the authoritative document for the approved Artemis Mission planning dates for use in analysis, assessments, interdependency tracking, and communication. The Artemis Mission planning dates in the Manifest represent crew launch for the missions.

Artemis III and IV manifest is currently in development. The Artemis II IMS is mature with contractor informed schedules. Updates will be pending following Artemis I mission completion. Artemis III and IV IMSs are in development and still pending contractor informed schedules for recently awarded and future procurements. As part of the expanding interdependency beyond ACD/CESD, the divisions are working more closely with and increasing integration with SCaN. SCaN has been integrated into the ACD control board as an ad hoc member which was reflected in an update of the ACD Control Board Charter. SCaN's content is still under formulation. Initial updates to the ACPM have a placeholder for the SCAN lunar relay content and are in discussions for future updates for additional content when more fully defined.

Office of Primary Responsibility: Exploration Systems Mission Directorate

Target Completion Date: 5/31/2023

55. Report: NASA's Management of the Artemis Missions (IG-22-003; 11/5/2021)

Recommendation: (3) Develop an Artemis-wide cost estimate, in accordance with best practices, that is updated on an annual basis.

Status: NASA is currently working towards closing this recommendation and still on track to provide closure in 2024.

Office of Primary Responsibility: Exploration Systems Mission Directorate

Target Completion Date: 2/28/2024

56. Report: NASA's Management of the Artemis Missions (IG-22-003; 11/5/2021)

Recommendation: (4) Maintain an accounting of per-mission costs to increase transparency and establish a benchmark against which NASA can assess the outcome of initiatives to increase the affordability of ESD systems.

Status: NASA is developing a methodology to provide Congress with a repeatable assessment of mission costs for each mission in its Artemis campaign. Costs of newly developed capabilities will be provided in addition to production and operations cost estimates for any hardware in the mission that has been previously produced and operated. These estimates will include the cost of hardware production, integration costs for each mission, operations costs, and separately the annual fixed basis of costs as captured by these programs. Costs expended by international partners will be excluded. Future missions and mission content are predicted on Presidential direction and

Congressional appropriations and therefore estimates could reflect changes in manifest, changes in contract strategies, and/or fluctuations due to obsolescence and production rate. Such as assessment will be provided as a report outside of MPAR. All cost data will be consistent with the established reporting restrictions associated with pre-decisional data.

Office of Primary Responsibility: Exploration Systems Mission Directorate

Target Completion Date: 2/28/2023

57. **Report: NASA's Management of the Artemis Missions** (IG-22-003; 11/5/2021)

   Recommendation: (6) Develop a realistic funding profile and schedule given the underfunding of HLS in FY 2021, the selection of one HLS award, and the desire to compete a sustainability contract for future lunar missions.

   Status: The HLS KDP-C for initial capability is anticipated to be held April 2023.

   Office of Primary Responsibility: Exploration Systems Mission Directorate

   Target Completion Date: 5/31/2023

58. **Report: NASA's Management of the Artemis Missions** (IG-22-003; 11/5/2021)

   Recommendation: (7) Identify measurable cost reduction targets for its ESD contractors.

   Status: NASA is currently working towards closing this recommendation and still on track to provide closure in 2023.

   Office of Primary Responsibility: Exploration Systems Mission Directorate

   Target Completion Date: 12/30/2023

59. **Report: NASA's Utilization of the ISS and Commercialization of Low Earth Orbit** (IG-22-005; 11/30/2021)

   Recommendation: (1) Ensure the risks associated with cracks and leaks in the Service Module Transfer Tunnel are identified and mitigated prior to agreeing to an ISS life extension.

   Status: The ISS Extension through 2030 was formally announced by the White House and ratified by Congress in the 2021-2022 timeframe, and extension formalization with the ISS International Partners is in work. While taken very seriously by the ISS Partnership, the leak currently presents no immediate danger to the crew, vehicle, or impacts projected longevity of the ISS through 2030. Multiple measures have been implemented to identify the source(s) of the leak, with identified cracks being permanently patched with no issues. Ongoing efforts between the partners will continue to understand the causes, seal remaining leaks, and communicate appropriately. The impacts are minimized through isolation of this compartment when crew access is not

needed, and if necessary, could be permanently isolated. Additionally, there is sufficient gas currently on ISS, and planned to be launched, to sustain appropriate levels of atmospheric pressure until the issue is resolved.

Office of Primary Responsibility: Space Operations Mission Directorate

Target Completion Date: n/a

Appendix D
Reconciliation with NASA OIG Semi-Annual Report

Reconciliation with OIG's November 30, 2022 Semi-Annual Report (As of 12/31/2022)		
	Reports	**Recommendations**
Total Open Public Reports and Recommendations as of 9/30/22 [OIG Semi-Annual Report]	**43**	**116**
Minus: Public Reports and Recommendations Open Less than One Year	(10)	(54)
Net Public Reports and Recommendations Open More than One Year (as of 9/30/22)	**33**	**62**
Plus: Additional Public Reports and Recommendations Open More Than One Year (as of 10/1/22)	2	10
Minus: Public Reports and Recommendations Open More than One Year on 9/30/22 but Closed During 10/1/22 – 12/30/22	(10)	(13)
Total Public Reports and Recommendations Open More than One Year (as of 12/31/2022)	**25**	**59**

Appendix E
List of Acronyms

Abbreviation	Description
ABC	Agency Baseline Commitment
ACD	Advanced Capability Division
ACPM	Artemis Campaign Planning Manifest
ADR	Active Debris Removal
AFR	Agency Financial Report
APS	Application and Platform Service
ARC	Ames Research Center
CCRO	Chief Cybersecurity Risk Officer
CDC	Center for Disease Control
CESD	Common Exploration Systems Development Division
CIO	Chief Information Officer
CIP	Cybersecurity Improvement Portfolio
CLPS	Commercial Launch Provider Services
CO	Contracting officers
CoF	Construction of Facilities
COOP	Continuity of Operations Plan
COR	Contracting officer's representatives
CPMO	Chief Program Management Officer
CSPD	Cybersecurity and Privacy Division
DAAC	Distributed Active Archive Centers
DCD	Design, Construction, and Demolition
EA	Enterprise Architecture
ECRM	Enterprise Cybersecurity Risk Management
EGS	Exploration Ground Systems
EM-2	Exploration Mission 2
ESA	Enterprise Security Architecture
ESDIS	Earth Science Data and Information System
FTAC	Fast Track Action Committee
FY	Fiscal Year
GAO	Government Accountability Office
GISS	Goddard Institute for Space Studies
GSDO	Ground Systems Development and Operations
HALO	Habitation and Logistics Outpost
HEOMD	Human Exploration and Operations Mission Directorate
HLS	Human Landing System
HM	Hazardous Materials
HMIS	Hazardous Materials Information Systems
HPD	Heliophysics Division
IADC	Inter-Agency Space Debris Coordination Committee
IGIM	Interagency Group on Integrative Modeling

ISS	International Space Station
IT	Information technology
ITSB	Information Technology Strategic Board
JCL	Joint Confidence Level
JSC	Johnson Space Center
KDP	Key Decision Point
LEO	Lower Earth Orbit
ML-2	Mobile Launcher-2
MPAR	Major Program Annual Report
NASA	National Aeronautics and Space Administration
NHPA	National Historic Preservation Act
NICE	National Initiative for Cybersecurity Education
NID	NASA Interim Directive
NISAR	NASA ISRO Synthetic Aperture Radar
NODIS	NASA Online Directives Information System
NPD	NASA Policy Directive
NPR	NASA Procedural Requirements
NSWAP	National Space Weather Action Plan
OCE	Office of the Chief Engineer
OCFO	Office of Chief Financial Officer
OCHCO	Office of the Chief Human Capital Officer
OCIO	Office of the Chief Information Officer
OCOMM	Office of Communications
ODARs	Orbital Debris Assessment Reports
ODMSP	Orbital Debris Mitigation Standard Practices
OIG	Office of the Inspector General
OMB	Office of Management and Budget
OPS	Office of Protective Services
ORR	Operational Readiness Review
OSTP	Office of Science and Technology Policy
PM	Program management
POA&M	Plan of action and milestones
PDR	Preliminary Design Review
PPBE	Program Planning, Budgeting, and Execution
PPE	Power and Propulsion Element
RFC	Request for Closure
RPOC	rendezvous, proximity operations, and capture
SAO	Strategy and Architecture Office
SIB	Strategic Infrastructure Board
SLS	Space Launch System
SOC	Security Operations Center

SPD-3	Space Policy Directive 3
STMD	Space Technology Mission Directorate
SWOT	Surface Water and Topography
USG	United States Government
VIPER	Volatiles Investigating Polar Exploration Rover