

NASA

National Aeronautics and Space Administration

Office of Inspector General

Office of Audits

REVIEW OF NASA'S FISCAL YEAR 2020 DIGITAL ACCOUNTABILITY AND TRANSPARENCY ACT SUBMISSION

November 8, 2021

Report No. IG-22-002





Office of Inspector General

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NASA Office of Inspector General
Office of Audits

RESULTS IN BRIEF

Review of NASA's Fiscal Year 2020 Digital Accountability and Transparency Act Submission

November 8, 2021

IG 22 002 (A 21 006 00)

WHY WE PERFORMED THIS AUDIT

The Digital Accountability and Transparency Act of 2014 (DATA Act) was enacted to expand and improve oversight of federal spending, which in fiscal year (FY) 2020 totaled over \$6.5 trillion. To increase transparency, the DATA Act requires the Office of Management and Budget and the U.S. Department of the Treasury (Treasury) to establish government-wide data standards that provide consistent, reliable, and searchable data for any federal funds made available to, or expended by, federal agencies. Agencies are responsible for submitting complete and accurate financial and award data to USAspending.gov, a publicly accessible government website that tracks federal spending. To increase accountability, the DATA Act also required that Inspectors General issue three reports (one every two years) on the completeness, accuracy, timeliness, and quality of their agency's data, and on their agency's implementation and use of government-wide data standards. We previously issued two reports to meet our requirements under the Act:

- In November 2017, our first report found NASA's FY 2017, second quarter submission was complete, timely, and properly used the DATA Act standards; however, we identified minor errors with the accuracy and quality of the data.
- In November 2019, our second report found NASA's FY 2019, first quarter submission was complete and timely, properly used the DATA Act standards, and that the record-level data met the standard for higher quality despite errors in timeliness, accuracy, and completeness.

In this third and final DATA Act audit, we assessed (1) the completeness, accuracy, timeliness, and overall quality of NASA's FY 2020, fourth quarter financial and award data totaling nearly \$5.6 billion that was submitted to Treasury for posting to USAspending.gov; and (2) NASA's implementation and use of the required data standards. To conduct this work, we reviewed applicable laws and regulations, interviewed NASA personnel, and performed audit steps, sampling, and analysis according to guidance provided by the Council of the Inspectors General on Integrity and Efficiency (CIGIE).

WHAT WE FOUND

We assessed the Agency’s data for timeliness, accuracy, and completeness using non-statistical and statistical testing. According to the standards established by CIGIE, data quality is considered “Excellent” if the Agency’s total score on the quality scorecard is 95 points or higher. Based on the results of our non-statistical and statistical testing of NASA’s DATA Act submission for the fourth quarter of FY 2020, the Agency’s financial and award data scored 95.5 points for a quality rating of Excellent.

However, despite this high rating we identified errors that affected the timeliness, accuracy, and completeness of the data similar to those we identified in our prior reviews. Specifically, procurement information was not entered into source systems in accordance with the timeline established by the Federal Acquisition Regulation. Additionally, we identified inaccuracies in the tested transactions attributable to manual input errors. Finally, we identified errors in the completeness and accuracy of the data due to contracting officials not verifying procurement information in the Federal Procurement Data System-Next Generation. These errors increase the risk that untimely, inaccurate, and incomplete data will be uploaded to USAspending.gov, decreasing the reliability and usefulness of the data published on the public website.

	CRITERIA	MAX POINTS*	NASA'S POINTS
Non-Statistical	Timeliness of Agency Submission	5.0	5.0
	Completeness of Summary Level Data (Files A & B)	10.0	10.0
	Suitability of File C for Sample Selection	10.0	9.9
	Record-Level Linkages (Files C & D)	7.0	6.8
	COVID-19 Outlay Testing (Judgemental Sample)	8.0	8.0
Statistical	Completeness	15.0	14.3
	Accuracy	30.0	27.7
	Timeliness	15.0	13.8
	QUALITY LEVEL	100.0	95.5

Quality Level	Score Range
Excellent	95-100
Higher	85-94.999
Moderate	70-84.999
Lower	0-69.999

WHAT WE RECOMMENDED

To improve the accuracy and completeness of NASA’s DATA Act submissions, we made two recommendations in addition to addressing previous DATA Act audit recommendations that remain open to the Assistant Administrator for Procurement: (1) provide training to contracting officers to ensure consistent understanding of the DATA Act Information Model Schema data element definitions and requirements; and (2) correct the incomplete and inaccurate award data identified in this audit.

We provided a draft of this report to NASA management who concurred with our recommendations and described actions they plan to take to address them. We consider management’s comments to our recommendations responsive; therefore, the recommendations are resolved and will be closed upon completion and verification of the proposed corrective actions.

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Acronyms

CIGIE	Council of the Inspectors General on Integrity and Efficiency
CARES Act	Coronavirus Aid, Relief, and Economic Security Act of 2020
COVID-19	coronavirus disease 2019
DAIMS	DATA Act Information Model Schema
DATA Act	Digital Accountability and Transparency Act of 2014
DEFC	disaster emergency fund code
FABS	Financial Assistance Broker Submission
FAEC	Federal Audit Executive Council
FAIN	Federal Award Identification Number
FAR	Federal Acquisition Regulation
FMFIA	Federal Managers' Financial Integrity Act of 1982
FPDS-NG	Federal Procurement Data System-Next Generation
FSRS	Federal Funding Accountability and Transparency Act Subaward Reporting System
FY	fiscal year
GTAS	Government-wide Treasury Account Symbol Adjusted Trial Balance System
OIG	Office of Inspector General
OMB	Office of Management and Budget
PIID	Procurement Instrument Identifier
SAM	System for Award Management
SAO	Senior Accountable Official
SAP	Systems, Applications, and Products
SF	Standard Form

INTRODUCTION

The Digital Accountability and Transparency Act of 2014 (DATA Act) was enacted to expand and improve oversight of federal spending, which in fiscal year (FY) 2020 totaled over \$6.5 trillion. To increase transparency, the DATA Act requires the Office of Management and Budget (OMB) and the U.S. Department of the Treasury (Treasury) to establish government-wide data standards that provide consistent, reliable, and searchable data for any federal funds made available to, or expended by, federal agencies. Agencies are responsible for submitting complete and accurate financial and award data to USAspending.gov, a publicly accessible government website that tracks federal spending. To increase accountability, the DATA Act also required that Inspectors General issue three reports (one every two years) on the completeness, accuracy, timeliness, and quality of their agency's data, and on their agency's implementation and use of government-wide data standards. We issued two previous reports to meet our requirements under the Act:

- In November 2017, our first report found NASA's FY 2017, second quarter submission was complete, timely, and properly used the DATA Act standards; however, we identified minor errors with the accuracy and quality of the data.¹
- In November 2019, our second report found NASA's FY 2019, first quarter submission was complete and timely, properly used the DATA Act standards, and that the record-level data met the standard for higher quality despite errors in timeliness, accuracy, and completeness.²

In this third and final DATA Act audit, we assessed (1) the completeness, accuracy, timeliness, and overall quality of NASA's FY 2020, fourth quarter financial and award data totaling almost \$5.6 billion that was submitted to Treasury for publication on USAspending.gov; and (2) NASA's implementation and use of the required data standards.³ See Appendix A for details of the audit's scope and methodology.

Background

The DATA Act requires federal agencies to disclose expenditures and links spending information to program activities so that both policymakers and the public can more easily track federal spending.⁴ It also directs federal agencies to submit higher-quality data to USAspending.gov, holds agencies accountable for the completeness and accuracy of the data they submit, and requires that data comply with standards established by OMB and Treasury.

¹ NASA Office of Inspector General (OIG), *NASA's Compliance with the Digital Accountability and Transparency Act of 2014* ([IG-18-004](#), November 7, 2017).

² NASA OIG, *Review of NASA's Fiscal Year 2019 Digital Accountability and Transparency Act Submission* ([IG-20-004](#), November 7, 2019).

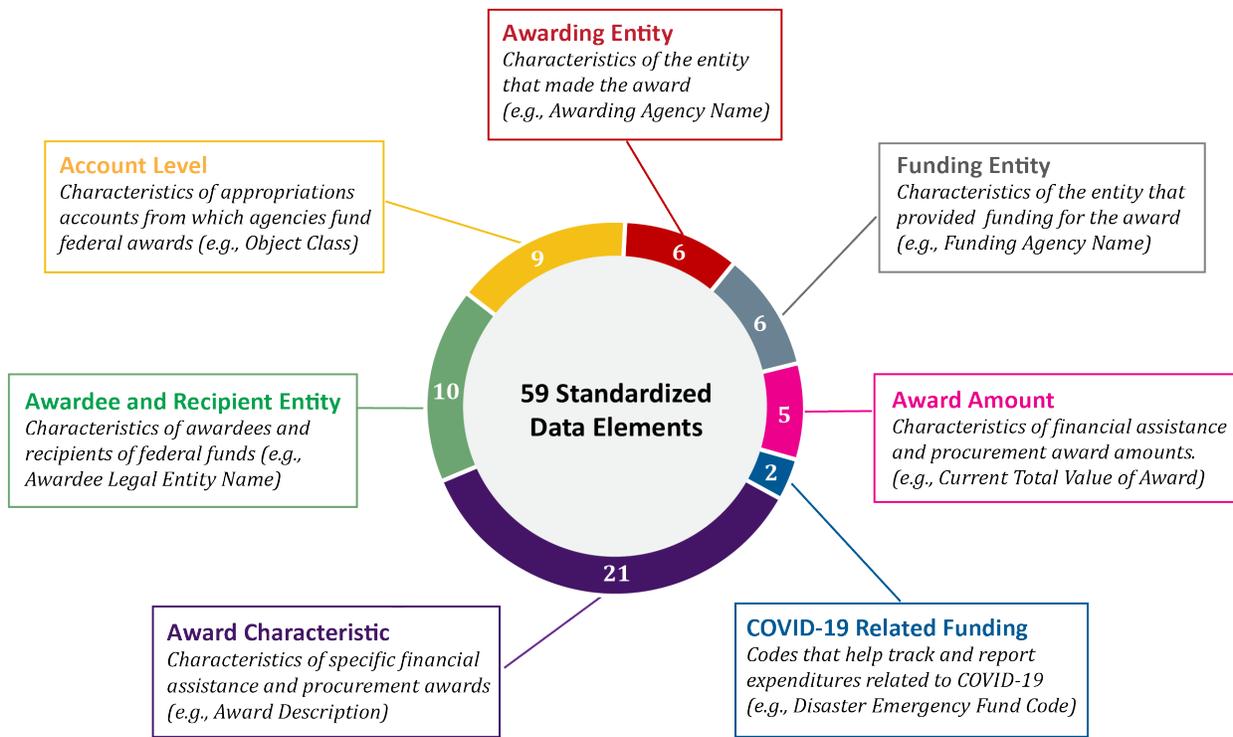
³ The Agency's FY 2020, fourth quarter submission included 53,625 transactions.

⁴ Expenditures on NASA's USAspending.gov submission included both obligations and outlays. Obligations are binding agreements that will result in outlays. Outlays are payments to liquidate an obligation. OMB Circular A-11, *Preparation, Submission, and Execution of the Budget* (July 2020).

Government-Wide Financial Data Standards

OMB- and Treasury-established government-wide financial data standards are designed to ensure consistent, reliable, and searchable spending data is uploaded to USAspending.gov. The data standards, or elements, were divided into six categories ranging from Awardee and Recipient Entity Data Standards such as an entity’s legal name and address, to Award Characteristic Data Standards, such as the type of award, period of performance start date, and primary place of performance.⁵ Additionally, effective June 2020, agencies that received coronavirus disease 2019 (COVID-19) relief funding are required to report data monthly, which must include specific data elements for COVID-19 expenditures.⁶ As such, there are now 59 applicable data elements (divided into seven categories) to be tested for agencies, such as NASA, that received COVID-19 related funding.⁷ See Figure 1 for the standardized data element categories and Appendix B for a complete list of the elements.

Figure 1: Standardized Data Elements by Category



Source: NASA Office of Inspector General (OIG) depiction of standardized data elements established by OMB and Treasury.

⁵ In this report, an entity is the awardee or recipient of federal funds and includes contractors and grantees.

⁶ OMB Memorandum M-20-21, *Implementation Guidance for Supplemental Funding Provided in Response to the Coronavirus Disease 2019 (COVID-19)* (April 10, 2020).

⁷ In response to the COVID-19 pandemic, Congress passed the Coronavirus Aid, Relief, and Economic Security (CARES) Act (Pub. L. No. 116-136) in March 2020. The CARES Act provided NASA with \$60 million for safety, security, and mission support to prevent, prepare for, and respond to coronavirus.

DATA Act Guidance and Automated Data Collection System

Treasury's guidance, known as the DATA Act Information Model Schema (DAIMS), describes the seven data files that comprise the required DATA Act submission and dictates the sources of information in each file. Treasury also developed the DATA Act Broker—an automated data collection system designed to ensure agency-submitted data is properly formatted and validated across financial and award systems.

Each reporting system that feeds into the DAIMS provides slightly different insight into financial and award data, as shown in Figure 2. On the financial side, the authoritative source for data is each agency's financial system. Three files—Files A, B, and C—each with specific attributes, are generated from agency financial systems.⁸ For example, summary-level appropriations data is reported to the Broker through File A, spending information organized by object class code is reported through File B, and spending information organized by transaction is reported through File C. On the procurement or award side, the authoritative sources are the Federal Procurement Data System-Next Generation (FPDS-NG), Financial Assistance Broker Submission (FABS), System for Award Management (SAM), and Federal Funding Accountability and Transparency Act Subaward Reporting System (FSRS). The Broker extracts information from each of these four systems (which are owned by the General Services Administration and Treasury). For example, information on a subcontractor's name and address is extracted from FSRS and reported through File F.

⁸ Per OMB M-20-21, effective June 2020, agencies that received COVID-19 relief funding are required to report Files A, B, and C monthly.

Figure 2: DATA Act File Attributes

<p>File A <i>Appropriations Account</i></p> <ul style="list-style-type: none"> Generated from agency financial system Appropriations summary level aligned to SF 133 reporting^a 	<p>File B <i>Object Class Code and Program Activity</i></p> <ul style="list-style-type: none"> Generated from agency financial system Obligation and outlay information at the program activity and object class code level 	<p>File C <i>Award Financial</i></p> <ul style="list-style-type: none"> Generated from agency financial system Obligations and outlays at the award and object class code level COVID-19 outlays 	
<p>File D1 <i>Procurement Award Information</i></p> <ul style="list-style-type: none"> Extracted from FPDS-NG Procurement award and awardee details, such as product or service, awardee information, contract start and expiration dates, and place of performance 	<p>File D2 <i>Financial Assistance Award Information</i></p> <ul style="list-style-type: none"> Extracted from FABS Financial assistance award (grants, cooperative agreements, loans) and awardee details, such as awardee information and place of performance 	<p>File E <i>Additional Awardee Attributes</i></p> <ul style="list-style-type: none"> Extracted from SAM Additional prime awardee attributes, such as unique identifier and executive compensation information 	<p>File F <i>Subaward Attributes</i></p> <ul style="list-style-type: none"> Extracted from FSRS Subawardee information, such as name, place of performance, and executive compensation

Source: NASA OIG analysis of OMB and Treasury data.

^a Standard Form (SF) 133, *Report on Budget Execution and Budgetary Resources*, allows the monitoring of funds across programs within an agency and across agencies on a quarterly basis.

The Broker also standardizes and helps validate the data. First, the Broker determines whether data elements within the files comply with formatting requirements (such as field type and character length) and are correctly calculated. Second, the Broker validates budget and financial data (including elements such as appropriation account, object class code, outlay, and program activity) by cross-checking multiple sources. Once the validation is complete, the Broker produces an error report. The error report can contain “fatal errors,” which would prohibit an agency from certifying and submitting its data, and “warnings,” which highlight discrepancies but still allow for certification and submission. Agencies can correct errors and warnings prior to certifying the data. After validation and certification, the Broker publishes the data on the Agency’s behalf on USAspending.gov.

Assuring Data Completeness and Accuracy

OMB and Treasury require agencies to validate and certify the completeness and accuracy of data submitted to the Broker. Each agency’s Senior Accountable Official (SAO) for the DATA Act is required to provide two types of assurance. The first is to certify that the linkage among Files A through F is valid and reliable. For example, a financial transaction with a Procurement Instrument Identifier (PIID) in File C must align with the procurement award information in File D1 (extracted from FPDS-NG), and a financial transaction with a Federal Award Identification Number (FAIN) in File C must align with the financial assistance award information from File D2 (extracted from FABS). The second assurance is to

certify that data submitted in Files A through D2 is valid and reliable.⁹ In order to provide this assurance, SAOs confirm that internal controls over data quality mechanisms are in place for the data submitted.¹⁰ For agency-owned systems, SAOs can consider assurance provided under the Federal Managers' Financial Integrity Act of 1982 (FMFIA), which requires agencies to establish internal accounting and administrative controls and provide annual statements of assurance that those controls are designed adequately and operating effectively.¹¹ SAOs can also consider the results of existing verification procedures required by the Federal Acquisition Regulation (FAR).¹² Finally, for externally-generated files, SAOs are expected to apply assurances based on the internal controls of the system owner (the General Services Administration).

In June 2018, OMB issued guidance requiring agencies to develop and maintain a Data Quality Plan to assist in achieving the objectives of the DATA Act.¹³ According to OMB, the Data Quality Plan should consider the risks to data quality and existing controls that would mitigate such risks, and cover significant milestones and major decisions pertaining to:

- organizational structure and key processes providing internal controls for spending reporting;
- management's responsibility to supply quality data to meet the reporting objectives;
- testing plan and identification of high-risk reported data, including specific data the agency determines to be high-risk that is explicitly referenced by the DATA Act; and
- actions taken to manage identified risks.

Agencies are required to consider the Data Quality Plan in the annual assurance statement beginning in FY 2019 and continuing through FY 2021 at a minimum, or until they can provide reasonable assurance over the internal controls for DATA Act reporting. In April 2020, OMB issued implementation guidance further extending the requirement for agencies to consider the Data Quality Plan in their annual assurance statements until COVID-19 response related funds have been fully expended.¹⁴

NASA's DATA Act Process

NASA established a process, following Treasury's DAIMS, for generating and uploading financial data as shown in Figure 3. Specifically, the Agency generates File A by reformatting SF 133 data obtained from Treasury's web-based Government-wide Treasury Account Symbol Adjusted Trial Balance

⁹ There is no requirement that Files E and F be validated. The data in these files is the responsibility of the awardee in accordance with terms and conditions of federal agreements, and the quality of this data is the legal responsibility of the recipient.

¹⁰ Existing data quality measures required by regulation and OMB guidance include: OMB Memorandum M-15-12, *Increasing Transparency of Federal Spending by Making Federal Spending Data Accessible, Searchable, and Reliable* (May 8, 2015), and OMB Memorandum M-17-04, *Additional Guidance for DATA Act Implementation: Further Requirements for Reporting and Assuring Data Reliability* (November 4, 2016).

¹¹ OMB guidance for implementing FMFIA provides direction for establishing, assessing, correcting, and reporting on internal controls. OMB Circular No. A-123, *Management's Responsibility for Enterprise Risk Management and Internal Control* (July 15, 2016).

¹² Federal Acquisition Regulation 4.604, "Contract Reporting," requires an annual FPDS-NG Verification and Validation Report be sent to the General Services Administration.

¹³ OMB Memorandum M-18-16, Appendix A to OMB Circular No. A-123, *Management of Reporting and Data Integrity Risk* (June 6, 2018).

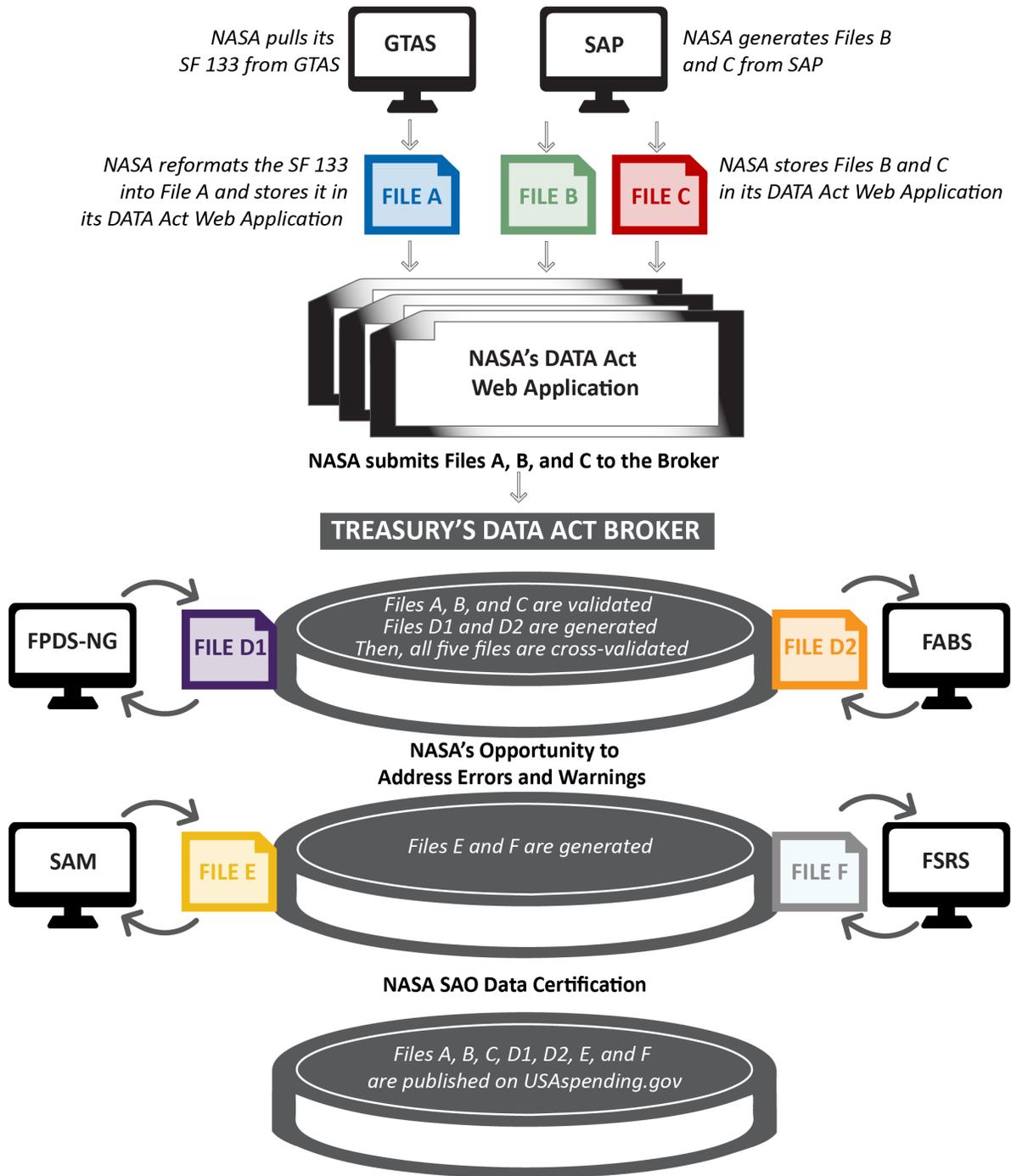
¹⁴ OMB M-20-21.

System (GTAS), which originated from NASA's core financial system known as Systems, Applications, and Products (SAP). Files B and C are generated directly from SAP. All three files are then stored on an Agency-developed web application and subsequently uploaded to the DATA Act Broker. The Broker then generates File D1 from FPDS-NG and File D2 from FABS.

Once the files are generated, the Broker validates the five files containing NASA's data. Then, the Broker generates an error report and NASA has the opportunity to resolve errors. Finally, the Broker generates Files E and F from external reporting systems. File E (Additional Awardee Attributes) is generated from SAM and File F (Sub-award Attributes) is generated from FSRS. NASA's SAO subsequently certifies and publishes the Agency's submission to USAspending.gov. The Agency's FY 2020, fourth quarter submission included 53,625 transactions totaling about \$5.6 billion in obligations.¹⁵

¹⁵ The number and value of transactions are based on File C.

Figure 3: NASA's Data Generation Process



Source: NASA OIG depiction of NASA's data generation process.

Note: GTAS data originates in SAP.

Certification of Data Completeness and Accuracy

NASA relies on the FMFIA requirements and OMB guidance to evaluate and assure the reliability of its internal controls over its financial management systems. Thus, the annual assurance of internal controls required by FMFIA and OMB and detailed in NASA's Agency Financial Report covers its DATA Act submissions.¹⁶ Specific control activities related to the DATA Act include reviewing and reconciling data submitted to Treasury's GTAS, from which File A is generated. NASA also relies on its annual FPDS-NG Verification and Validation process to ensure data accuracy. This process, required by OMB's Office of Federal Procurement Policy and conducted by NASA's Office of Procurement, identifies errors between FPDS-NG and NASA contract files and procurement systems.¹⁷ Specifically, NASA Centers perform statistically valid comparisons of FPDS-NG data to procurement systems and contract files twice a year. Twenty-five data elements including *Award Type*, *Action Date* (or the date signed), and *Place of Performance Zip Code +4* (a component of the *Primary Place of Performance Address*), are verified for accuracy. The NASA Office of Procurement compiles the Center results and provides a summary report to the Office of Federal Procurement Policy and the General Services Administration. For FY 2020, NASA reported an overall accuracy rate of 98.57 percent.¹⁸

To further increase transparency and accountability of its spending, NASA finalized its Data Quality Plan in June 2019. The plan outlines a governance structure, process for identifying risks, and explanation of the Agency's overall DATA Act submission process. According to the plan, NASA will monitor internal and external risks and classify risks as low, moderate, or high. The plan explains that a risk assessment will be performed, and the outcome will be used as an assurance tool to identify and quantify risks and map existing controls that mitigate those risks. Additionally, in our prior audit we recommended the Agency incorporate the results of our FY 2019 review when executing its Data Quality Plan and determining high risk control areas for FY 2020 ([IG-20-004](#), recommendation 5). However, the Agency had not performed its risk assessment prior to the FY 2020, fourth quarter DATA Act submission. Therefore, our prior audit recommendation remains open. See Appendix F for a complete list of prior recommendations.

Inspector General DATA Act Reporting Requirements

The DATA Act requires each Inspector General to submit a public report to Congress assessing (1) the agency's implementation and use of the government-wide financial data standards, and (2) the completeness, accuracy, timeliness, and quality of the data sampled. See Appendix E for a copy of the Council of the Inspectors General on Integrity and Efficiency (CIGIE) letter that outlines revised reporting timelines for Inspectors General.

To ensure audit procedures are performed and reported consistently across the government, CIGIE developed a common audit methodology guide that further standardizes the definitions and requirements for reporting financial data standard implementation, completeness, accuracy, timeliness, and overall quality to improve data comparability. CIGIE updated the guide in December 2020 for this,

¹⁶ NASA, *FY 2020 Agency Financial Report* (December 2, 2020). The Administrator's Statement of Assurance expressed an unmodified assurance statement that its internal controls were operating effectively throughout the year.

¹⁷ Office of Federal Procurement Policy Memorandum, *Improving Federal Procurement Data Quality – Guidance for Annual Verification and Validation* (May 31, 2011).

¹⁸ NASA, *FY 2020 FPDS Data Quality Report Details and Certification* (April 1, 2021).

the third and final round of DATA Act audits.¹⁹ The guide requires audit teams to report their results using a quality scorecard with the assessment of overall data quality derived using a combination of non-statistical and statistical methods.²⁰ The level of quality for an agency's data is determined by calculating quality based on weighted scores of both non-statistical and statistical testing results.

The non-statistical assessments for determining an agency's implementation and use of financial data standards in Files A through D2 include:²¹

- *Completeness of Summary-Level Data.* Matching Treasury account symbols and totals of Files A and B, and verifying Files A and B reconcile to the agency's SF 133 and adhere to OMB regulations.²²
- *Timeliness of Agency Submission.* For agencies that receive COVID-19 funding, verifying that the agency submitted its DATA Act submissions monthly and certified the data within 45 days of the end of the reporting quarter.
- *Suitability of File C for Sample Selection.* For all File C transaction records submitted in the reporting quarter, verifying File C links to File B and File C Award ID numbers exist in Files D1 or D2.
- *Record-Level Linkages.* Verifying a statistical sample of File C transaction records link to Files D1 or D2 by award ID.
- *COVID-19 Outlay Testing.* Verifying a sample of the agency's COVID-19 outlay records are complete, accurate, and timely.

Additionally, the guide requires Inspectors General to report error rates for completeness, accuracy, and timeliness of its statistical sample. For this audit, we selected a random sample of 242 transactions from File C valued at approximately \$41.9 million. The sampled transactions included 187 procurement and 55 financial assistance award transactions such as grants and cooperative agreements. According to the guide, the scope of the audit includes assessing a sample of File C to ensure:

- *Completeness.* The required data elements for each of the tested transactions are reported in the appropriate files.
- *Accuracy.* Information, amounts, and other data relating to tested transactions are reported in accordance with the DAIMS, with OMB and Treasury requirements, and agree with the authoritative source records.
- *Timeliness.* The required data elements for each tested transaction are reported in accordance with the reporting schedules. Financial elements should be reported in the quarter they occurred, procurement award elements should be reported in FPDS-NG within 3 business days

¹⁹ CIGIE, *CIGIE FAEC Inspectors General Guide to Compliance under the DATA Act* (December 4, 2020).

²⁰ The quality of data is defined by CIGIE as data that is complete, accurate, and timely and includes non-statistical and statistical testing results.

²¹ OIGs are not required to assess Files E and F.

²² OMB A-11.

after contract award, and financial assistance award elements should be reported no later than 30 days after award.²³

We projected the results of our transaction testing by data elements to the population of transactions in File C to generate a projected error rate. See Appendix A for our sampling methodology and Appendix B for overall error rates for completeness, accuracy, and timeliness.

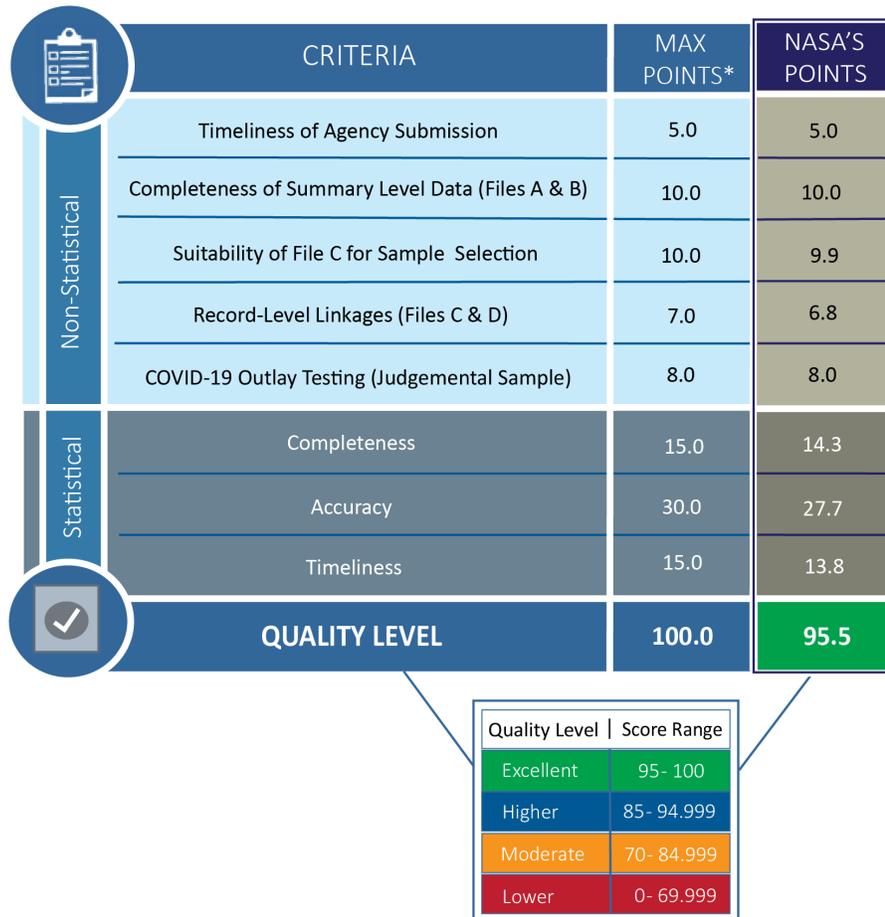
Overall Quality Score: The guide assigns a weighted score to each of the above categories and totals these scores to arrive at an overall quality score. Figure 4 in the following section shows the CIGIE quality scorecard and levels along with NASA's results.

²³ Financial and financial assistance reporting schedules are determined by the Federal Funding Accountability and Transparency Act of 2006. Procurement reporting schedules are determined by FAR Part 4.604.

NASA'S FY 2020 DATA ACT SUBMISSION MET THE HIGHEST STANDARD, BUT OPPORTUNITIES TO IMPROVE DATA QUALITY REMAIN

We assessed the Agency's data for timeliness, accuracy, and completeness using non-statistical and statistical testing. According to the standards established by CIGIE, data quality is considered "Excellent" if the Agency's total score on the quality scorecard is 95 points or higher. Based on the results of our non-statistical and statistical testing of NASA's DATA Act submission for the fourth quarter of FY 2020, the Agency's financial and award data scored 95.5 points for a quality rating of Excellent.

Figure 4: CIGIE Quality Scorecard and Levels with NASA's Results



Source: NASA OIG depiction of CIGIE criteria and testing results.

* Maximum score possible for agencies that received COVID-19 funding.

Despite this high rating, we identified errors that affected the timeliness, accuracy, and completeness of the data similar to those we identified in our prior reviews. Specifically, procurement information was not entered into source systems in accordance with the timeline established by the FAR. Additionally, we identified inaccuracies in the tested transactions attributable to manual input errors. Finally, we identified errors in the completeness and accuracy of the data due to contracting officials not verifying procurement information in FPDS-NG. These errors increase the risk that untimely, inaccurate, and incomplete data will be uploaded to USAspending.gov, decreasing the reliability and usefulness of the data published on the public website.

NASA's FY 2020 Data Submission Was Complete, Timely, and Used Government-Wide Financial Data Standards

We found NASA's FY 2020, fourth quarter overall submission was complete, timely, and suitable for audit testing. Further, we found the Agency implemented and properly used the government-wide financial data standards, as required by the DATA Act.

Overall Submission Was Complete, Timely, and Suitable for Testing

We found that NASA's DATA Act submission, which included Files A, B, and C, was complete and submitted and certified in a timely manner. Specifically, summary-level financial data in File A included all Treasury Account Symbols from which funds were obligated and summary-level financial data in File A matched the Agency's SF 133. Agency object class and program activity names and codes from File B matched the Program and Financing Schedule of the President's Budget and adhered to OMB regulations.²⁴ Moreover, the Treasury Account Symbols and totals of Files A and B matched. We also found File C included obligation amounts for each award made and/or modified during the reporting quarter and was linked to File B through the Treasury Account Symbol, object class, and program activity data elements. Finally, we found the monthly and quarterly submissions were certified and filed by the required due dates set by Treasury, and all transactions that should have been recorded were done so within the proper period (July 2020 through September 2020).²⁵

We also tested File C linkages and reviewed NASA's reconciliation of broker warnings to determine whether NASA's DATA Act submission was suitable for audit sampling. We found NASA's methodology sufficient to determine whether File C is complete and contains all transactions and linkages that should be included, as well as for resolving DATA Act Broker warnings between Files C and D1 or D2. We also found NASA's process reasonable for addressing variances and reporting any unusual or unexplained variances. As such, we concluded that NASA's File C was suitable for audit sampling.

²⁴ OMB A-11.

²⁵ The fourth quarter FY 2020 DATA Act submission was due on November 16, 2020. The July, August, and September 2020 monthly submissions were due on August 28, 2020, September 29, 2020, and November 16, 2020, respectively.

NASA Correctly Implemented and Used Government-Wide Financial Data Standards

We evaluated NASA's implementation of the government-wide financial data standards for award and spending information and determined the Agency implemented and is using the standards as defined by OMB and Treasury to successfully submit the spending data to Treasury's DATA Act Broker.

NASA linked all the data elements by common identifiers (e.g., PIID, FAIN) across applicable procurement, financial, and grant systems. For the Treasury's DATA Act Broker files tested, we generally found that the required elements were present in the file and that the record values were presented in accordance with the standards.

NASA's COVID-19 Outlays Were Complete, Accurate, Timely, and Reported Correctly

The federal government's response to the COVID-19 pandemic included passage of the CARES Act economic relief package and new reporting requirements for agencies that received COVID-19 funds. Effective for the June 2020 reporting period, agencies with COVID-19 relief funding must submit COVID-19 outlays in File C as well as identify those outlays with a disaster emergency fund code (DEFC).

We selected a non-statistical sample of 7 out of 69 File C outlay records from the September 2020 DATA Act submission. Our testing included assessing the Parent Award ID number, PIID/FAIN, object class, appropriations account, obligation, program activity, outlay, and DEFC File C outlays data elements for completeness, accuracy, and timeliness. Based on our testing, we found the File C COVID-19 outlays for our sample complete, accurate, and timely.²⁶

NASA's FY 2020, Fourth Quarter Record-Level Data Was Complete, Accurate, and Timely, Despite Errors

We assessed the Agency's data for timeliness, accuracy, and completeness. While we determined that NASA's data met the CIGIE standard of Excellent for overall quality, we identified errors that affected the timeliness, accuracy, and completeness of the data based on our statistical sampling of individual records in File C. Specifically, procurement information was not entered into source systems in accordance with the timeline established by the FAR. Additionally, we identified inaccuracies in the tested transactions attributable to manual input errors. Finally, we identified errors in the completeness and accuracy of the data due to contracting officials not verifying procurement information in FPDS-NG. These errors increase the risk that untimely, inaccurate, and incomplete data will be uploaded to USAspending.gov, decreasing the reliability and usefulness of the data published on the public website.

²⁶ Our August 2021 review of the Agency's CARES Act spending found that NASA appropriately managed these funds to meet congressional mandates as well as Agency and federal guidance. NASA OIG, *Review of Coronavirus Aid, Relief, and Economic Security (CARES) Act Funding* ([IG-21-024](#), August 9, 2021).

Delayed Procurement Reporting Affected Timeliness of Data

We found lags in NASA’s reporting of data to FPDS-NG, which in turn affected the timeliness of information displayed on USAspending.gov. Specifically, for the 242 tested transactions, we identified an 8.37 percent error rate for timeliness.²⁷ The error rate is based on the number of applicable data elements tested for the 242 transactions with each data element weighted equally. We assessed timeliness by determining whether: (1) procurement award data elements from File D1 were recorded in FPDS-NG within three business days after the contract was awarded, (2) financial assistance data elements from File D2 were reported within 30 days of the award, and (3) financial data elements from File C were reported in the quarter in which they occurred. See Appendix B for a list of error rates by individual data element.

We found 22 tested transactions related to procurement awards that were not entered into FPDS-NG within three business days after the contract or modification was signed, as required by the FAR. Additionally, we identified 12 financial transaction records from our sample that did not have corresponding awards in Files D1 or D2. Of those 12 transactions, 11 were not linked to File D1 (procurement) and 1 was not linked to File D2 (financial assistance). A majority of the non-linkages were due to delayed procurement reporting. FPDS-NG awards for these delayed transactions were entered an average of 60 days after the FAR required deadline of 3 days. Agency officials explained that information is not always input in a timely manner due to competing priorities of contracting officers. As such, our prior audit recommendation related to this issue remains open ([IG-20-004](#), recommendation 2). See Appendix F for a list of recommendations from prior DATA Act audits.

Input and Linkage Errors Affected Completeness of Data

We also found errors in NASA’s data that affected the completeness of information displayed on USAspending.gov. Specifically, for our 242 tested transactions, we identified a 4.52 percent error rate for completeness.²⁸ The error rate is based on the number of applicable data elements tested for the 242 transactions, with each data element weighted equally. Completeness was determined by first identifying which data elements were required to be reported and then determining whether the data was reported in the appropriate files. See Appendix B for a list of error rates by individual data elements.

Of the 242 tested transactions, we identified 28 incomplete records—12 due to the linkage issues caused by delayed procurement reporting as discussed above, and 16 due to manual input omissions of required data related to the *Legal Entity Address* data element. While these manual input omission errors negatively affected NASA’s non-statistical completeness score, we determined the actual impact to be minimal, and of limited material effect on the overall completeness of NASA’s submission. Additionally, implementation of our prior audit recommendation related to the timely entering of procurement data ([IG-20-004](#), recommendation 2) should address the underlying linkage issues that impacted the completeness of NASA’s data and therefore the recommendation remains open. See Appendix F for a list of recommendations from prior DATA Act audits.

²⁷ Based on a 95 percent confidence level, the projected error rate for timeliness is between 1.9 and 7.1 percent. This error rate is based on the number of applicable data elements tested for timeliness within the 242 tested transactions.

²⁸ This error rate is based on the number of applicable data elements tested for completeness within the 242 tested transactions. Based on a 95 percent confidence level, the projected error rate for completeness is between 4.9 and 11.9 percent.

Errors Affected Accuracy of Data

Finally, we found errors in NASA's data that affected the accuracy of information displayed on USA Spending.gov. Specifically, for our 242 tested transactions, we identified a 7.76 percent error rate for accuracy.²⁹ The error rate is based on the number of applicable data elements tested for the 242 transactions, with each data element weighted equally. A data element is considered accurate if the amounts and other information relating to the transactions are recorded in accordance with OMB and Treasury requirements and match the authoritative source, such as an agency's financial system or procurement and financial assistance award documentation. The inaccuracies we identified were the result of definitional discrepancies for the data elements, contracting officers manually inputting errors into FPDS-NG and not verifying the accuracy of information within FPDS-NG, and system linkage issues that were not caused by NASA. See Appendix B for a list of error rates by individual data elements and Appendix D for details on the accuracy of dollar value-related data elements.

NASA Reported Inaccurate Information for Data Elements with Varying Definitions or Requirements between the DAIMS and Source Systems

We found manual input errors for data elements such as *Current Total Value of Award* and *Award Description*, where the definitions between the DAIMS and the source systems from which the data is pulled differ. For the dollar value-related data element *Current Total Value of Award*, we found errors in 85 tested File D1 transactions totaling \$4 billion.³⁰ According to OMB and Treasury's standardized data elements and definitions, *Current Total Value of Award* is the total amount obligated to date on a contract, including the base and exercised options. However, the corresponding data element in FPDS-NG requires contracting officers to input a different amount—the total value of the base and options exercised to date on a contract. These two definitions differ in that the total value of the exercised contract actions may include amounts that have not yet been obligated. Contracting officers explained that they follow the FPDS-NG definition for the *Current Total Value of Award* data element.

We also found *Award Description* errors in 43 File D1 and D2 tested transactions, due to Agency officials manually inputting incorrect information based on differing data element definitions and requirements between the DAIMS and source systems, such as FPDS-NG. According to the DAIMS definition, *Award Description* is “[a] brief description of the purpose of the award.” However, the FPDS-NG Data Dictionary reporting guidance states, “For modifications, either re-state the brief description of the goods or services or describe what the modification is doing.” Although this instruction provides an option to report data that does not align with the DAIMS definition, it also provides an option to report a brief description of goods or services that align with the DAIMS definition. CIGIE guidance specifies, “if the *Award Description*...describes only ‘what the modification is doing’ (e.g., ‘exercise an option’) and does not describe the goods or services, this data element should be marked as inaccurate.”³¹ NASA officials explained that they follow the FPDS-NG definition for the *Award Description* data element.

²⁹ This error rate is based on the number of applicable data elements tested for accuracy within the 242 tested transactions. Based on a 95 percent confidence level, the projected error rate for accuracy is between 4.4 and 11.1 percent.

³⁰ The *Current Total Value of Award* data element was applicable to 162 procurement award transactions in our sample with a current value totaling \$12.6 billion.

³¹ CIGIE FAEC DATA Act Working Group, *FY 2021 DATA Act Audit Frequently Asked Questions* (May 11, 2021). FAEC is the Federal Audit Executive Council.

NASA Manually Inputted Errors and Did Not Verify Procurement Data

Additionally, we found inaccuracies in the information entered for *Action Date*, *Legal Entity Address*, *Potential Total Value of Award*, *Primary Place of Performance Address*, and various *Period of Performance* data elements.³² Further, for the dollar value-related data element *Potential Total Value of Award*, the errors totaled \$847 million. Those inaccuracies were either caused by contracting officers entering incorrect information into FPDS-NG or not verifying that the information within FPDS-NG was accurate. For example, contracting officers manually entered different award signature dates (*Action Date*) in FPDS-NG than what the award documentation showed. In other instances, contracting officers incorrectly entered the current option period end date as the *Period of Performance Potential End Date*, rather than the final option period end date, as required by the DAIMS. Additionally, we found that while *Legal Entity Address* is populated in FPDS-NG from entries the award recipients make in SAM, those addresses did not consistently match award documentation. According to Agency officials, contracting officers should have ensured the data populated from SAM matched the associated award documentation.

Errors Caused by System Linkage Issues

We also found 62 tested transactions with inaccuracies related to *Ultimate Parent Legal Entity Name* and *Ultimate Parent Unique Identifier*.³³ These inaccuracies were the result of a system linkage issue between USAspending.gov and SAM. USAspending.gov should auto-populate this information from SAM using the Agency's awardee Dun & Bradstreet Number entry in FPDS-NG, but this did not always occur. Furthermore, procurement officials stated they cannot manually update this element within FPDS-NG. Procurement officials explained the errors can occur when an entity updates its registration in SAM, including its address or parent information, but the update is not automatically made in FPDS-NG. We note that NASA did not cause the issue and cannot reconcile the issue within FPDS-NG. We still, however, factor these inaccuracies into the Agency's accuracy error rate.

³² The *Legal Entity Address* data element includes five components: Address Line 1, Address Line 2, City Name, State Code, and ZIP+4 Code. There are four *Period of Performance* data elements: Start Date, Current End Date, Potential End Date, and Ordering Period End Date. The *Potential Total Value of Award* data element was applicable to 187 procurement award transactions in our sample with a potential value totaling \$24 billion. We found *Action Date* errors in 31 File D1 and D2 transactions, *Award Description* errors in 43 File D1 and D2 transactions, *Legal Entity Address* errors in 70 File D1 and D2 tested transactions, *Primary Place of Performance Address* errors in 31 File D1 and D2 transactions, and *Period of Performance* errors in 44 File D1 and D2 transactions.

³³ The *Ultimate Parent Unique Identifier* and *Ultimate Parent Legal Entity Name* contain unique identification numbers and names, respectively, for the parent company of an awardee or recipient.

CONCLUSION

NASA's DATA Act submission for the fourth quarter of FY 2020 met the CIGIE established standard for "Excellent" quality data. However, we identified errors within the transactions that affected the timeliness, accuracy, and completeness of the data used as part of the submission. The ultimate goal of the DATA Act is to increase the transparency and accountability of federal spending, making it easier for policymakers and the public to track how taxpayer dollars are being used. The accuracy and usefulness of the spending information posted to USAspending.gov depends on NASA and all federal agencies continuing to make improvements to their processes for collecting and verifying financial and procurement data.

RECOMMENDATIONS, MANAGEMENT'S RESPONSE, AND OUR EVALUATION

To improve the accuracy and completeness of NASA's DATA Act submissions, we recommended that [in addition to addressing previous OIG DATA Act recommendations that remain open], the Assistant Administrator for Procurement:

1. Provide training to contracting officers to ensure consistent understanding of the DAIMS data element definitions and requirements. The training should include guidance on:
 - a. data elements for which the FPDS-NG Data Dictionary instructions do not align with the DAIMS definitions, such as for the *Current Total Value of Award* and *Award Description* data elements.
 - b. data elements for which contracting officers must select or verify correct information as required by the DAIMS, such as for the *Action Date*, *Legal Entity Address*, and *Period of Performance* data elements.
2. Correct the incomplete and inaccurate award data identified in this audit.

We provided a draft of this report to NASA management who concurred with our recommendations and described actions they plan to take to address them. We consider management's comments to our recommendations responsive; therefore, the recommendations are resolved and will be closed upon completion and verification of the proposed corrective actions.

Management's comments are reproduced in Appendix G. Technical comments provided by management have also been incorporated, as appropriate.

Major contributors to this report include Mark Jenson, Financial Management Director; Taeree Lee, Project Manager; Mona Mann; Jeremy Watkins; and Shari Bergstein. Emily Bond provided editorial and graphics assistance.

If you have questions about this report or wish to comment on the quality or usefulness of this report, contact Laurence Hawkins, Audit Operations and Quality Assurance Director, at 202-358-1543 or laurence.b.hawkins@nasa.gov.

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Paul K. Martin
Inspector General

APPENDIX A: SCOPE AND METHODOLOGY

We performed this audit from December 2020 through October 2021 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. The scope of this audit was NASA's FY 2020, fourth quarter financial and award data submitted for publication on USAspending.gov. Our objectives were to assess (1) the completeness, accuracy, timeliness, and quality of the data, and (2) the Agency's implementation and use of the government-wide financial data standards.

We reviewed applicable laws and regulations and interviewed and/or obtained information from various personnel including NASA's SAO for the DATA Act and individuals on the NASA DATA Act team from the Office of the Chief Financial Officer, Office of Procurement, and Agency Applications Office. We performed detailed audit steps as outlined in the *CIGIE FAEC Inspectors General Guide to Compliance under the DATA Act*, issued December 4, 2020. This included obtaining the Agency's FY 2020, fourth quarter DATA Act submission for Files A, B, C, D1, D2, E, and F, and the SAO's certification statement.³⁴ We gained an understanding of the Agency's certification and submission process as well as the reconciliation process used to address warnings from the Broker. The team reviewed NASA's SAO certification statement for the fourth quarter of FY 2020 to determine whether the Agency identified any data quality issues that should be considered in determining the nature and extent of our audit work. NASA's SAO disclosed timeliness issues that we took into consideration when planning our audit.

To determine whether NASA's overall DATA Act submission was complete and timely we ensured summary level financial data in File A included all Treasury Account Symbols from which funds were obligated and matched the Agency's financial reports submitted to Treasury. We also verified that all program activity names, codes, and object classes listed in File B matched the Program and Financing Schedule of the President's Budget and OMB regulations, and that the totals of Files A and B matched. Additionally, we ensured File C linked to File B through the required data elements and also linked to Files D1 and D2 by award identification number. Finally, we ensured NASA's FY 2020, fourth quarter submission was certified and submitted to the Broker by the required date of November 16, 2020.

We followed the approach outlined in the December 2020 *CIGIE FAEC Inspectors General Guide to Compliance under the DATA Act* to develop our sample. Per the CIGIE requirements, our sample is based on a 95 percent confidence level, population size of 13,788, expected error rate of 20 percent, and desired sampling precision of 5 percent with a maximum sample size of 385.³⁵ Using these parameters, we selected a statistically valid, simple random sample of 242 transactions from File C using the Excel RAND function. We performed procedures to ensure the sampled transactions from File C linked to Files D1 and D2 by unique identifier and transaction obligation amount.

³⁴ There is no requirement that Files E and F be validated. The data in these files are the responsibility of the awardee in accordance with terms and conditions of federal agreements, and the quality of the data is the legal responsibility of the recipient.

³⁵ Population size is the total number of obligation transactions in File C. The expected error rate was based on the results of our 2019 review, [IG-20-004](#). The error rate was reported to the Government Accountability Office per the requirements of the CIGIE guide.

To assess the completeness of the data elements in the sampled transactions for Files C, D1, and D2, we ensured that all sampled transactions contained the data elements required by the Act. If a data element was required, but was not reported, we considered the data element for that transaction incomplete.

To assess accuracy of the data elements in Files C, D1, and D2, we determined if the amounts and other data relating to the sampled transactions had been recorded in accordance with the DAIMS, Reporting Submission Specification, Interface Definition Document, and the DATA Act Online Data Dictionary, and agreed with the authoritative source records. We matched data elements from Files C, D1, and D2 to NASA's financial system, SAP; procurement system, SAP Procurement for Public Sector; or procurement award and financial assistance award modification documentation. We also matched award data elements from Files D1 and D2 to SAM, verified zip codes to USPS.com, and congressional districts to house.gov.

To assess the timeliness of the data elements, we ensured (1) award financial data elements within File C were reported in the quarter in which it occurred; (2) procurement award data elements within File D1 were reported in FPDS-NG within three business days after contract award in accordance with the FAR; and (3) financial assistance award data elements within File D2 were reported no later than 30 days after award. Finally, to assess the quality of the data elements, we determined whether the data was complete, accurate, and reported a timely manner.

To determine whether the Agency implemented and properly used government-wide financial data standards, we reviewed NASA's data inventory and mapping for Files A, B, C, D1, and D2 to ensure that the standardized data elements and OMB and Treasury definitions per the DAIMS were used across the Agency's business processes and systems. We also compared these Files against each other to determine that the Agency submission was complete, File C was suitable for audit testing, and to ensure that record-level linkages were reliable. Finally, to test NASA's COVID-19-related spending, we randomly sampled 7 of 69 COVID-19 outlays from the Agency's September 2020 submission. We ensured that the File C data for these seven records was complete, accurate, and timely, in a similar manner to our statistical sample. For each of the tests performed, we considered the reasonableness of NASA's process to resolve all variances we identified. We combined the results of these tests with the results of our statistical sample testing into a Quality Scorecard to calculate the Agency's overall data quality.

Assessment of Data Reliability

We obtained data extracted from NASA's financial system, SAP; NASA's procurement system, SAP Procurement for Public Sector; NASA's legacy contract writing system, PRISM; the General Services Administration's System for Award Management at SAM.gov; the General Services Administration's Federal Procurement Data System, Next Generation at FPDS.gov; and the United States House of Representatives website at house.gov to assess the quality of NASA's DATA Act submission, as well as its implementation and use of the required data standards. We assessed the reliability of the data by (1) performing electronic testing for errors in accuracy and completeness, (2) reviewing existing information about the data and the systems that produced them, and (3) interviewing Agency officials knowledgeable about the data. In addition, we traced a statistically valid sample and a judgmental (non-statistical) sample of data to source documents. We determined that the data was sufficiently reliable for the purposes of responding to our objectives.

Review of Internal Controls

We assessed internal controls necessary to satisfy the audit objectives. Specifically, we assessed the information and communication internal control component and the underlying principles relating to the use of quality information and externally communicating the necessary quality information to achieve NASA's reporting objectives. In particular, we assessed the internal control process NASA has in place for DATA Act reporting, which included obtaining an understanding of the design of internal and information system controls as they relate to the extraction of data from the source systems and the reporting of data to the Broker. We also obtained an understanding of NASA's process for evaluating and assuring the reliability of its internal controls over its financial management systems, and reviewed the resulting annual assurance of internal controls as required by FMFIA and OMB, which is detailed in NASA's *FY 2020 Agency Financial Report*.³⁶ Additionally, we considered NASA's compliance with the Federal Financial Management Improvement Act of 1996, as outlined in the Administrator's Statement of Assurance for FY 2020.³⁷ Finally, we reviewed the SAO's assurance statement that NASA's internal controls support the reliability and validity of the Agency's summary-level and record-level data reported in the fourth quarter of FY 2020 for publication on USASpending.gov.

Our review was limited to the internal control components and underlying principles discussed above, thus it may not have disclosed all internal control deficiencies that may have existed at the time of this audit. Any internal control deficiencies identified are discussed in this report. Our recommendations, if implemented, should correct the identified control deficiencies.

Federal Laws, Regulations, Policies, and Guidance

We reviewed the following laws, regulations, policies, and guidance for information related to implementation of the DATA Act.

- Digital Accountability and Transparency Act of 2014, Pub. L. No. 113-101 (2014)
- Federal Funding Accountability and Transparency Act of 2006, Pub. L. No. 109-282 (2006)
- Federal Financial Management Improvement Act of 1996, Pub. L. No. 104-208 (1996)
- Federal Managers' Financial Integrity Act of 1982, Pub. L. No. 97-255 (1982)
- Code of Federal Regulations (CFR), Title 48 Federal Acquisition Regulations (FAR) Part 4 *Administrative and Information Matters*, Subpart 4.604 *Responsibilities* (July 12, 2021)
- OMB Circular A-11, *Preparation, Submission, and Execution of the Budget* (July 2020)
- OMB Circular A-123, *Management's Responsibility for Enterprise Risk Management and Internal Control* (July 15, 2016)

³⁶ Federal Managers' Financial Integrity Act of 1982 (FMFIA), Pub. L. No. 97-255 (1982). OMB Circular A-123 is the implementing guidance for FMFIA, which provides direction for establishing, assessing, correcting, and reporting on internal controls. Within NASA's *FY 2020 Agency Financial Report* (December 2, 2020), the FY 2020 Statement of Assurance expressed a clean, unmodified assurance statement that its internal controls were operating effectively throughout the year.

³⁷ Federal Financial Management Improvement Act of 1996, Pub. L. No. 104-208 (1996). OMB A-123. The Administrator's Statement of Assurance, signed November 16, 2020, is included in NASA's *FY 2020 Agency Financial Report* (December 2, 2020).

- OMB Memorandum M-21-03, *Improvements in Federal Spending Transparency for Financial Assistance* (November 12, 2020)
- OMB Memorandum M-20-21, *Implementation Guidance for Supplemental Funding Provided in Response to the Coronavirus Disease 2019 (COVID-19)* (April 10, 2020)
- OMB Memorandum M-20-20, *Repurposing Existing Federal Financial Assistance Programs and Awards to Support the Emergency Response to the Novel Coronavirus* (April 9, 2020)
- OMB Memorandum M-20-18, *Managing Federal Contract Performance Issues Associated with the Novel Coronavirus* (March 20, 2020)
- OMB Memorandum M-20-11, *Administrative Relief for Recipients and Applicants of Federal Financial Assistance Directly Impacted by the Novel Coronavirus* (March 9, 2020)
- OMB Memorandum M-18-16, *Appendix A to OMB Circular A-123, Management of Reporting and Data Integrity Risk* (June 6, 2018)
- OMB Memorandum M-17-04, *Additional Guidance for DATA Act Implementation: Further Requirements for Reporting and Assuring DATA Reliability* (November 4, 2016)
- OMB Memorandum M-15-12, *Increasing Transparency of Federal Spending by Making Federal Spending Data Accessible, Searchable, and Reliable* (May 8, 2015)
- OMB Memorandum M-13-08, *Improving Financial Systems Through Shared Services* (March 25, 2013)
- OMB Memorandum M-10-06, *Open Government Directive* (December 8, 2009)
- OMB Management Procedures Memorandum No. 2016-03, *Additional Guidance for DATA Act Implementation: Implementing Data-Centric Approach for Reporting Federal Spending Information* (May 3, 2016)
- OMB, *Open Government Directive - Framework for the Quality of Federal Spending Information*, (February 8, 2010)
- OMB, *Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by Federal Agencies* (February 22, 2002)
- Office of Federal Procurement Policy Memorandum, *Improving Federal Procurement Data Quality - Guidance for Annual Verification and Validation* (May 31, 2011)
- OMB Memorandum, *Risk-Based Financial Audits and Reporting Activities in Response to COVID-19* (June 17, 2020)
- U.S. Department of the Treasury, *DATA Act Information Model Schema (DAIMS) Validation Rules Version 2.0* (May 6, 2020)
- U.S. Department of the Treasury, *DATA Act Information Model Schema (DAIMS) Practices and Procures for DATA Act Broker Submissions Version 2.0* (May 6, 2020)
- U.S. Department of the Treasury, *DATA Act Information Model Schema (DAIMS) Interface Definition Document (IDD) Version 2.0* (May 6, 2020)
- U.S. Department of the Treasury, *DATA Act Information Model Schema (DAIMS) Reporting Submission Specification (RSS) Version 2.0* (May 6, 2020)

- Data Dictionary Version 2.0 (<https://www.usaspending.gov/data-dictionary>)
- NASA Procedural Requirements 9010.2B, *The Continuous Monitoring Program of Financial Controls* (May 31, 2018)
- NASA Procedural Requirements 9010.3A, *Financial Management Internal Control* (February 3, 2020)
- NASA Procedural Requirements 9130.1, *NASA Financial Information Systems* (September 30, 2008)
- NASA Office of the Chief Financial Officer, *DATA Quality Plan* (June 25, 2019)
- NASA Office of Procurement, *NASA Federal Procurement Data System (FPDS) Guide* (April 11, 2016)

Prior Coverage

During the last 5 years, the NASA Office of Inspector General (OIG) and the Government Accountability Office (GAO) have issued 13 reports of significant relevance to the subject of this report. Unrestricted reports can be accessed at <https://oig.nasa.gov/audits/auditReports.html> and <https://www.gao.gov>, respectively.

NASA Office of Inspector General

Review of NASA's Fiscal Year 2019 Digital Accountability and Transparency Act Submission ([IG-20-004](#), November 7, 2019)

NASA's Compliance with the Digital Accountability and Transparency Act of 2014 ([IG-18-004](#), November 7, 2017)

Government Accountability Office

DATA ACT: OIGs Reported That Quality of Agency-Submitted Data Varied, and Most Recommended Improvements ([GAO-20-540](#), July 2020)

DATA ACT: Quality of Data Submission Has Improved but Further Action Is Needed to Disclose Known Data Limitations ([GAO-20-75](#), November 2019)

DATA ACT: Pilot Effectively Tested Approaches for Reducing Reporting Burden for Grants but Not for Contracts ([GAO-19-299](#), April 2019)

DATA ACT: OMB Needs to Formalize Data Governance for Reporting Federal Spending ([GAO-19-284](#), March 2019)

OPEN DATA: Treasury Could Better Align USAspending.gov with Key Practices and Search Requirements ([GAO-19-72](#), December 2018)

DATA ACT: Reported Quality of Agencies' Spending Data Reviewed by OIGs Varied Because of Government-wide and Agency Issues ([GAO-18-546](#), July 2018)

DATA ACT: OMB, Treasury, and Agencies Need to Improve Completeness and Accuracy of Spending Data and Disclose Limitations ([GAO-18-138](#), November 2017)

DATA ACT: As Reporting Deadline Nears, Challenges Remain That Will Affect Data Quality ([GAO-17-496](#), April 2017)

DATA ACT: Office of Inspector General Reports Help Identify Agencies' Implementation Challenges ([GAO-17-460](#), April 2017)

DATA ACT: Implementation Progresses but Challenges Remain ([GAO-17-282T](#), December 2016)

DATA ACT: OMB and Treasury Have Issued Additional Guidance and Have Improved Pilot Design but Implementation Challenges Remain ([GAO-17-156](#), December 2016)

APPENDIX B: DATA ELEMENT ERROR RATES

Data Element No.	Data Element Name	Error Rate Percentage for Timeliness (T), Accuracy (A), Completeness (C)		
		T	A	C
1	Awardee/Recipient Legal Entity Name	9.50	4.96	4.96
2	Awardee/Recipient Unique Identifier	9.50	5.37	4.96
3	Ultimate Parent Unique Identifier	9.50	8.68	4.96
4	Ultimate Parent Legal Entity Name	9.50	24.38	4.96
5	Legal Entity Address	9.50	28.93	11.57
6	Legal Entity Congressional District	9.50	6.20	4.96
7	Legal Entity Country Code	9.50	4.96	4.96
8	Legal Entity Country Name	9.50	4.96	4.96
9	Highly Compensated Officer Name	N/A	N/A	N/A
10	Highly Compensated Officer Total Compensation	N/A	N/A	N/A
11	Amount of Award	1.82	1.82	1.82
12	Non-Federal Funding Amount	N/A	N/A	N/A
13	Federal Action Obligation	9.50	5.79	4.96
14	Current Total Value of Award	13.58	52.47	6.79
15	Potential Total Value of Award	11.76	16.04	5.88
16	Award Type	9.50	5.37	4.96
17	NAICS Code	11.76	9.63	5.88
18	NAICS Description	11.76	5.88	5.88
19	Catalog of Federal Domestic Assistance Number	1.82	3.64	1.82
20	Catalog of Federal Domestic Assistance Title	1.82	3.64	1.82
21	Treasury Account Symbol (excluding Sub-Account)	Included as part of Data Element 51		

Data Element No.	Data Element Name	Error Rate Percentage for Timeliness (T), Accuracy (A), Completeness (C)		
		T	A	C
22	Award Description	9.50	17.77	4.96
23	Award Modification/Amendment Number	9.50	4.96	4.96
24	Parent Award ID Number	15.73	12.36	12.36
25	Action Date	9.50	12.81	4.96
26	Period of Performance Start Date	9.50	14.56	4.96
27	Period of Performance Current End Date	10.60	11.52	5.53
28	Period of Performance Potential End Date	13.58	12.96	6.79
29	Ordering Period End Date	10.71	14.29	10.71
30	Primary Place of Performance Address	9.35	14.49	4.21
31	Primary Place of Performance Congressional District	10.55	6.42	5.50
32	Primary Place of Performance Country Code	9.35	4.21	4.21
33	Primary Place of Performance Country Name	9.35	4.21	4.21
34	Award ID Number (PIID/FAIN)	9.50	4.96	4.96
35	Record Type	1.82	1.82	1.82
36	Action Type	11.52	9.95	6.28
37	Business Types	1.82	7.27	1.82
38	Funding Agency Name	9.50	4.96	4.96
39	Funding Agency Code	9.50	4.96	4.96
40	Funding Sub Tier Agency Name	9.50	4.96	4.96
41	Funding Sub Tier Agency Code	9.50	4.96	4.96
42	Funding Office Name	9.50	4.96	4.96
43	Funding Office Code	9.50	4.96	4.96
44	Awarding Agency Name	9.50	4.96	4.96

Data Element No.	Data Element Name	Error Rate Percentage for Timeliness (T), Accuracy (A), Completeness (C)		
		T	A	C
45	Awarding Agency Code	9.50	4.96	4.96
46	Awarding Sub Tier Agency Name	9.50	4.96	4.96
47	Awarding Sub Tier Agency Code	9.50	4.96	4.96
48	Awarding Office Name	9.50	4.96	4.96
49	Awarding Office Code	9.50	4.96	4.96
50	Object Class	0.00	0.00	0.00
51	Appropriations Account	0.00	2.89	0.00
52	Budget Authority Appropriated	N/A	N/A	N/A
53	Obligation	0.00	0.00	0.00
54	Unobligated Balance	N/A	N/A	N/A
55	Other Budgetary Resources	N/A	N/A	N/A
56	Program Activity	0.00	0.00	0.00
57	Outlay (Gross Outlay Amount By Award CPE) ^a	N/A	N/A	N/A
163	National Interest Action	11.76	5.88	5.88
430	Disaster Emergency Fund Code	0.00	0.00	0.00
Overall Error Rates		8.37	7.76	4.52

Source: NASA OIG results of testing data elements for timeliness, accuracy, and completeness.

^a Under OMB M-20-21, agencies with COVID-19 funding are required to provide each Gross Outlay Amount By Award CPE (Current Period Ending) on a monthly basis for each federal award with outlay activity broken down by Treasury Account Symbol, Program Activity, Object Class, and DEFC. Outlays were tested using a non-statistical sample.

Note: Data elements marked N/A were not required to be tested or were optional data elements and not reported by the Agency.

APPENDIX C: COMPARATIVE RESULTS FOR THE ACCURACY OF NASA'S DATA ELEMENTS

The table below shows the current accuracy error rate by data element as compared with the accuracy error rates reported in our prior audit of NASA's FY 2019 DATA Act submission ([IG-20-004](#)). The information is being provided for illustrative purposes only and may not necessarily be indicative of actual percent change based on differences in testing procedures such as population size, sample methodology, quarter tested, file tested, and changes to data definition standards.

Data Element No.	Data Element Name	Error Rate		
		2019	2020	Change
1	Awardee/Recipient Legal Entity Name	4.16	4.96	0.80
2	Awardee/Recipient Unique Identifier	6.23	5.37	(0.86)
3	Ultimate Parent Unique Identifier	10.39	8.68	(1.71)
4	Ultimate Parent Legal Entity Name	10.39	24.38	13.99
5	Legal Entity Address	21.56	28.93	7.37
6	Legal Entity Congressional District	20.31	6.20	(14.11)
7	Legal Entity Country Code	3.38	4.96	1.58
8	Legal Entity Country Name	3.38	4.96	1.58
9	Highly Compensated Officer Name	N/A	N/A	N/A
10	Highly Compensated Officer Total Compensation	N/A	N/A	N/A
11	Amount of Award	0.00	1.82	1.82
12	Non-Federal Funding Amount	N/A	N/A	N/A
13	Federal Action Obligation	4.16	5.79	1.63
14	Current Total Value of Award	11.83	52.47	40.64
15	Potential Total Value of Award	10.22	16.04	5.82
16	Award Type	3.38	5.37	1.99
17	NAICS Code	4.02	9.63	5.61

Data Element No.	Data Element Name	Error Rate		
		2019	2020	Change
18	NAICS Description	4.02	5.88	1.86
19	Catalog of Federal Domestic Assistance Number	0.00	3.64	3.64
20	Catalog of Federal Domestic Assistance Title	0.00	3.64	3.64
21	Treasury Account Symbol (excluding Sub-Account)	Included as part of Data Element 51		
22	Award Description	5.97	17.77	11.80
23	Award Modification/Amendment Number	3.38	4.96	1.58
24	Parent Award ID Number	2.05	12.36	10.31
25	Action Date	3.64	12.81	9.17
26	Period of Performance Start Date	4.56	14.46	9.90
27	Period of Performance Current End Date	3.34	11.52	8.18
28	Period of Performance Potential End Date	4.30	12.96	8.66
29	Ordering Period End Date	4.44	14.29	9.85
30	Primary Place of Performance Address	10.88	14.49	3.61
31	Primary Place of Performance Congressional District	11.76	6.42	(5.34)
32	Primary Place of Performance Country Code	3.23	4.21	0.98
33	Primary Place of Performance Country Name	3.23	4.21	0.98
34	Award ID Number (PIID/FAIN)	3.38	4.96	1.58
35	Record Type	0.00	1.82	1.82
36	Action Type	5.08	9.95	4.87
37	Business Types	0.00	7.27	7.27
38	Funding Agency Name	3.38	4.96	1.58
39	Funding Agency Code	3.38	4.96	1.58
40	Funding Sub Tier Agency Name	3.38	4.96	1.58
41	Funding Sub Tier Agency Code	3.64	4.96	1.32

Data Element No.	Data Element Name	Error Rate		
		2019	2020	Change
42	Funding Office Name	3.38	4.96	1.58
43	Funding Office Code	3.38	4.96	1.58
44	Awarding Agency Name	3.38	4.96	1.58
45	Awarding Agency Code	3.38	4.96	1.58
46	Awarding Sub Tier Agency Name	3.38	4.96	1.58
47	Awarding Sub Tier Agency Code	3.38	4.96	1.58
48	Awarding Office Name	3.38	4.96	1.58
49	Awarding Office Code	3.38	4.96	1.58
50	Object Class	0.00	0.00	0.00
51	Appropriations Account	0.00	2.89	2.89
52	Budget Authority Appropriated	N/A	N/A	N/A
53	Obligation	0.00	0.00	0.00
54	Unobligated Balance	N/A	N/A	N/A
55	Other Budgetary Resources	N/A	N/A	N/A
56	Program Activity	0.00	0.00	0.00
57	Outlay (Gross Outlay Amount By Award CPE)	N/A	N/A	N/A
163	National Interest Action	N/A	5.88	New Element
430	Disaster Emergency Fund Code	N/A	0.00	New Element
Overall Error Rates		4.93	7.76	2.83

Source: NASA OIG results of testing of data elements for timeliness, accuracy, and completeness.

Note: Data elements marked N/A were not required to be tested or were optional data elements and not reported by the Agency.

APPENDIX D: ACCURACY OF DOLLAR VALUE-RELATED DATA ELEMENTS

The following table provides the results of our testing for dollar value-related data elements.

Data Element (DE)	Accurate	Not Accurate	Not Applicable	Total Tested	Error Rate (percent)	Absolute Value of Errors (in millions) ^a
DE 11 Amount of Award	54	1	0	55	1.82	\$0
DE 12 Non-Federal Funding Amount	0	0	55	55	0.00	\$0
DE 13 Federal Action Obligation	228	14	0	242	5.79	\$4.04
DE 14 Current Total Value of Award	77	85	80	242	52.47	\$4,043.76
DE 15 Potential Total Value of Award	157	30	0	187	16.04	\$846.84
DE 53 Obligation	242	0	0	242	0.00	\$0

Source: NASA OIG results of dollar value related data elements.

^a Absolute value is the magnitude of a number without regard to its sign (negative or positive). These amounts are not projectable to the population because the tests of transactions were performed on attributes and not on monetary amounts.

Note: Data Elements 11 and 12 apply only to financial assistance award transactions and Data Element 15 applies only to procurement award transactions. Data Element 12 contains the amount of the award funded by non-federal sources. No NASA financial assistance award transactions included non-federal amounts. Data Element 14 applies to both; however, it includes 25 procurement award transactions that were not applicable because of the type of contract and 55 financial assistance award transactions that do not apply because NASA does not issue loans.

APPENDIX E: CIGIE LETTER



December 22, 2015

The Honorable Ron Johnson
Chairman
The Honorable Thomas Carper
Ranking Member
Committee on Homeland Security
and Governmental Affairs
United States Senate
Washington, D.C.

The Honorable Jason Chaffetz
Chairman
The Honorable Elijah Cummings
Ranking Member
Committee on Oversight and Government Reform
U.S. House of Representatives
Washington, D.C.

Dear Mr. Chairmen and Ranking Members:

The Council of the Inspectors General on Integrity and Efficiency (CIGIE) recognizes and appreciates your leadership on issues of Government transparency and accountability. In particular, we believe the enactment last year of the Digital Accountability and Transparency Act of 2014 (DATA Act) will significantly improve the quality of Federal spending data available to Congress, the public, and the accountability community if properly implemented. To make sure this happens, the DATA Act provides for strong oversight by way of the Federal Inspectors General and the Government Accountability Office (GAO). In particular, the DATA Act requires a series of reports from each to include, among other things, an assessment of the completeness, timeliness, quality, and accuracy of data submitted by agencies under the DATA Act.

I am writing this letter on behalf of CIGIE to inform you of an important timing anomaly with the oversight requirement for Inspectors General in the DATA Act. Your staffs have been briefed on this timing anomaly, which affects the first Inspector General reports required by the DATA Act. Specifically, the first Inspector General reports are due to Congress in November 2016. However, the agencies we oversee are not required to submit spending data in compliance with the DATA Act until May 2017. As a result, Inspectors General would be unable to report on the spending data submitted under the Act, as this data will not exist until the following year. This anomaly would cause the body of reports submitted by the Inspectors General in November 2016 to be of minimal use to the public, the Congress, the Executive Branch, and others.

To address this reporting date anomaly, the Inspectors General plan to provide Congress with their first required reports in November 2017, a one-year delay from the due date in statute, with subsequent reports following on a two-year cycle, in November 2019 and November 2021. We believe that moving the due dates back one year will enable the Inspectors General to meet the

1717 H Street, NW, Suite 825, Washington, DC 20006

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intent of the oversight provisions in the DATA Act and provide useful reports for the public, the Congress, the Executive Branch, and others.

Although we think the best course of action is to delay the Inspector General reports, CIGIE is encouraging the Federal Inspector General Community to undertake DATA Act “readiness reviews” at their respective agencies well in advance of the first November 2017 report. Through a working group, CIGIE has developed guidance for these reviews. I am pleased to report that several Inspectors General have already begun reviews at their respective agencies, and many Inspectors General are planning to begin reviews in the near future. We believe that these reviews, which are in addition to the specific oversight requirements of the Act, will assist all parties in helping to ensure the success of the DATA Act implementation. We have kept GAO officials informed about our plan to delay the first Inspector General reports for one year, which they are comfortable with, and our ongoing efforts to help ensure early engagement through Inspector General readiness reviews.

Should you or your staffs have any questions about our approach or other aspects of our collective DATA Act oversight activities, please do not hesitate to contact me at (202) 514-3435.

Sincerely,



Michael E. Horowitz
Chair, Council of the Inspectors General on Integrity and Efficiency
Inspector General, U.S. Department of Justice

cc: The Honorable David Mader, Controller, OMB
The Honorable Gene Dodaro, Comptroller General, GAO

APPENDIX F: STATUS OF PRIOR AUDIT RECOMMENDATIONS

The table below lists status of OIG recommendations from prior DATA Act audits as of the issuance of this report. Recommendations remain open until evidence is provided to adequately satisfy their intent.

Number	Recommendation	Status
IG-20-004		
To improve the timeliness, accuracy, and completeness of NASA's DATA Act submissions, we recommended that the Assistant Administrator for Procurement:		
1	Reinforce to contracting officers their responsibility to follow the FAR requirement to report procurement award data elements in FPDS-NG within three business days after contract award.	Closed
2	Incorporate a procedure into the existing Verification and Validation process to verify that procurement data is entered into FPDS-NG within three business days after contract award.	Open
3	Correct the incomplete and inaccurate award data identified in this audit.	Closed
4	Instruct contracting officers how to complete data fields in FPDS-NG that require manual input, such as the <i>Current Total Value of Award</i> and <i>Potential Total Value of Award</i> fields, and instruct contracting officers to verify that the data in FPDS-NG is consistent with the latest information in SAM when executing an award action	Closed
We also recommended that the Chief Financial Officer, working with the Senior Accountable Official:		
5	Incorporate the results of this audit—as detailed in this report and specifically identified according to data elements in Appendixes B and C—when executing the Agency's Data Quality Plan and determining high risk control areas in FY 2020.	Open
IG-18-004		
To improve the accuracy and quality of NASA's DATA Act submissions, we recommended NASA's Acting Chief Financial Officer and Assistant Administrator for Procurement:		
1	Ensure contractor information such as legal entity name, address, and primary place of performance is current in FPDS-NG and NASA systems.	Closed
2	Continue working with Treasury officials to ensure that the Broker-related issues are resolved.	Closed
3	Ensure FPDS-NG errors related to Broker warning messages are corrected in a timely manner.	Closed

Source: NASA OIG.

APPENDIX G: MANAGEMENT'S COMMENTS

National Aeronautics and
Space Administration

Mary W. Jackson NASA Headquarters
Washington, DC 20546-0001



Reply to Attn of: Office of Procurement

November 3, 2021

TO: Assistant Inspector General for Audits

FROM: Assistant Administrator for Procurement

SUBJECT: Agency Response to OIG Draft Report, "Review of NASA's Fiscal Year 2020 Digital Accountability and Transparency Act Submission" (A-21-006-00)

The National Aeronautics and Space Administration (NASA) appreciates the opportunity to review and comment on the Office of Inspector General (OIG) draft report entitled, "Review of NASA's Fiscal Year 2020 Digital Accountability and Transparency Act Submission" (A-21-006-00), dated October 1, 2021.

In the draft report, the OIG makes two recommendations addressed to the Assistant Administrator for Procurement intended to improve the accuracy and completeness of NASA's Digital Accountability and Transparency Act (DATA Act) submissions.

Specifically, the OIG recommends the following:

Recommendation 1: Provide training to contracting officers to ensure consistent understanding of the DAIMS data element definitions and requirements. The training should include guidance on:

- a. data elements for which the FPDS-NG Data Dictionary instructions do not align with the DAIMS definitions, such as for the Current Total Value of Award and Award Description data elements.
- b. data elements for which contracting officers must select or verify correct information as required by the DAIMS, such as for the Action Date, Legal Entity Address, and Period of Performance data elements.

Management's Response: NASA concurs. The Office of Procurement will provide training to contracting officers on the DATA Act Information Model Schema (DAIMS) data element definitions and requirements.

Estimated Completion Date: May 1, 2022.

Recommendation 2: Correct the incomplete and inaccurate award data identified in this audit.

Management's Response: NASA concurs. The Office of Procurement will ensure the incomplete and/or inaccurate actions identified in this audit are corrected.

Estimated Completion Date: January 31, 2022.

We have reviewed the draft report for information that should not be publicly released. As a result of this review, we have not identified any information that should not be publicly released.

Once again, thank you for the opportunity to review and comment on the subject draft report. If you have any questions or require additional information regarding this response, please contact Cheryl Robertson on (202) 358-0941.

Karla
Jackson

A digital signature block consisting of a red scribble and the text: "Digitally signed by Karla Jackson Date: 2021.11.03 08:17:15 -0400"

Karla Smith Jackson

APPENDIX H: REPORT DISTRIBUTION

National Aeronautics and Space Administration

Administrator
Deputy Administrator
Associate Administrator
Chief of Staff
Chief Financial Officer
Deputy Chief Financial Officer
Associate Chief Financial Officer, Senior Accountable Official
Assistant Administrator for Procurement

Non-NASA Organizations and Individuals

Office of Management and Budget
Deputy Associate Director, Climate, Energy, Environment, and Science Division
Government Accountability Office
Managing Director, Financial Management and Assurance
Director, Contracting and National Security Acquisitions

Congressional Committees and Subcommittees, Chairman and Ranking Member

Senate Committee on Appropriations
Subcommittee on Commerce, Justice, Science, and Related Agencies
Senate Committee on the Budget
Senate Committee on Commerce, Science, and Transportation
Subcommittee on Space and Science
Senate Committee on Finance
Senate Committee on Homeland Security and Governmental Affairs
House Committee on Appropriations
Subcommittee on Commerce, Justice, Science, and Related Agencies
House Committee on the Budget
House Committee on Financial Services
House Committee on Oversight and Reform
Subcommittee on Government Operations
House Committee on Science, Space, and Technology
Subcommittee on Investigations and Oversight
Subcommittee on Space and Aeronautics

(Assignment No. A-21-006-00)