



Smithsonian
Institution

Grants Management: Smithsonian Astrophysical Observatory Can Improve the Closeout Process for Chandra Grants

Office of the Inspector General

OIG-A-18-06

May 9, 2018



In Brief

Grants Management: Smithsonian Astrophysical Observatory Can Improve the Closeout Process for Chandra Grants

OIG-A-18-06, May 9, 2018

What OIG Did

The objective of this audit was to assess the effectiveness of the processes that SAO uses to close out grants under the National Aeronautics and Space Administration (NASA) Chandra contract. The audit focused on the timely submission of final reports and SAO's controls over closing purchase orders and deobligation of funds from completed grants.

Background

SAO, located in Cambridge, Massachusetts, is the Smithsonian Institution's largest recipient of grants and contracts from outside entities. Under a contract with NASA, SAO directs the science and flight operations of the Chandra X-ray Observatory, a telescope that detects X-ray emission from high-energy regions of the universe.

SAO has an annual funding level of approximately \$55 million for its work with the Chandra X-ray Observatory, including \$16 million for awards to eligible recipients under two types of grants: Chandra research grants and Einstein fellowship grants.

What OIG Found

The recipients of Chandra research and Einstein fellowship grants (Chandra grants) must submit final financial and performance reports to the Smithsonian Astrophysical Observatory's (SAO) Subawards Section before these grants can be closed. The Subawards Section has a process to help ensure that the final reports needed to close Chandra grants are submitted by the due date specified in the grant. However, the Office of the Inspector General (OIG) found that final reports for 52 (or 70 percent) of the 74 expired grants that OIG reviewed were not submitted on time, and some were between 1 and 2 years late. In addition, the grant specialists responsible for closing out the grants frequently did not follow up with past due notices to grant recipients when the final reports were late or were inconsistent in their follow-up activities. SAO grant specialists said a heavy workload and limited staff contributed to these problems.

OIG also found that the Subawards Section's process to close out Chandra grants generally did not include closing the purchase orders associated with these grants in the Enterprise Resource Planning Financials (ERP Financials), Smithsonian's financial management information system. Specifically, OIG identified 3,655 purchase orders that were associated with Chandra grants and dated from September 2002 through June 2016. Only 124 of these purchase orders were closed or cancelled in ERP Financials. OIG's analysis showed that 2,891 (or 79 percent) of these were for grants completed as of June 2016, but the purchase orders remained open in ERP Financials. Purchase orders that remain open in ERP Financials are at risk of being used inappropriately such as allowing unauthorized purchases. Furthermore, the Subawards Section did not always deobligate Chandra grant funds in a timely manner. OIG identified \$960,894 that SAO had not deobligated in ERP Financials when other closeout procedures were performed on the grants. During this audit, SAO deobligated most of these funds. However, as of February 2018, \$75,241 remained to be deobligated.

What OIG Recommended

OIG made three recommendations to improve the grant closeout process. Management concurred with all three recommendations.

For additional information or a copy of the full report, contact OIG at (202) 633-7050 or visit <http://www.si.edu/oig>.



Smithsonian Institution
Office of the Inspector General

Memo

Date: May 9, 2018

To: Charles Alcock, Director, Smithsonian Astrophysical Observatory (SAO)
Roger Brissenden, Deputy Director, SAO

Cc: John Davis, Undersecretary for Museums and Research/Provost
Albert Horvath, Chief Operating Officer and Under Secretary for Finance and
Administration
Joseph Lendall, Manager, Sponsored Programs and Procurement Department
(SPPD), SAO
Carol Dzenglewski, Senior Grant Specialist, SPPD, SAO

From: Cathy L. Helm, Inspector General *Cathy L. Helm*

Subject: *Grants Management: Smithsonian Astrophysical Observatory Can Improve the
Closeout Process for Chandra Grants (OIG-A-18-06)*

This memorandum transmits our final audit report on SAO's closeout process for Chandra grants. The objective of this audit was to assess the effectiveness of the processes that SAO uses to close out grants under the National Aeronautical and Space Administration Chandra contract. The audit focused on the timely submission of final reports and SAO's controls over closing purchase orders and deobligation of funds from completed grants.

We made three recommendations for SAO management to improve the grant closeout process. Management concurred with all three recommendations.

We appreciate the courtesy and cooperation of all SAO and Smithsonian management and staff during this audit. If you have any questions, please call me or Joan Mockeridge, Assistant Inspector General for Audits, at (202) 633-7050.

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ABBREVIATIONS

ERP Financials	Enterprise Resource Planning Financials
NASA	National Aeronautics and Space Administration
OIG	Office of the Inspector General
Smithsonian	Smithsonian Institution
SAO	Smithsonian Astrophysical Observatory

INTRODUCTION

The Smithsonian Astrophysical Observatory (SAO), which is located in Cambridge, Massachusetts, is the Smithsonian Institution's (Smithsonian) largest recipient of grants and contracts from outside entities, such as the National Aeronautics and Space Administration (NASA). Under a contract with NASA, SAO directs the science and flight operations of the Chandra X-ray Observatory. The Chandra X-ray Observatory is NASA's flagship mission for X-ray astronomy and one of its four "Great Observatories." Since its inception in 1991, SAO's NASA Chandra contract has exceeded \$1 billion.

SAO began issuing and administering Chandra research grants in 1999 and Einstein fellowship grants in 1998. The annual funding level for SAO's work with the Chandra X-ray Observatory is approximately \$55 million, including \$16 million in grants awarded to eligible institutions.

The objective of this audit was to assess the effectiveness of the processes that SAO uses to close out grants under the NASA Chandra contract. The Office of the Inspector General (OIG) focused on the closeout process for the Chandra grants and Einstein fellowships because of the financial importance of the NASA contract to SAO.

To assess the effectiveness of controls over the closeout process, OIG reviewed 74 grants from Chandra Cycle 13 and the Einstein Class of 2012 that were awarded to both SAO and non-SAO recipients between September 2011 and December 2013.¹ To evaluate SAO's controls over closing out grants in the Enterprise Resource Planning Financials (ERP Financials), OIG analyzed data for all Chandra cycles and Einstein classes to determine if any purchase orders for completed grants were still open and whether any unexpended funds remained.² A detailed description of OIG's objective, scope, and methodology can be found in Appendix I.

OIG conducted this performance audit from November 2015 through May 2018 in accordance with generally accepted government auditing standards. Those standards require that OIG plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for its findings and conclusions based on the audit objective. OIG believes that the evidence obtained provides a reasonable basis for the findings and conclusions based on its audit objective.

¹ Non-SAO recipients are those institutions other than SAO.

² ERP Financials is a Smithsonian-wide information system that automates a majority of the financial functions at the Smithsonian. Some key functions of ERP Financials include purchasing, billing, accounts payable, accounts receivable, general ledger, and budgeting.

BACKGROUND

NASA Contract for the Chandra X-ray Observatory

The Chandra X-ray Observatory is a telescope specifically designed to detect X-ray emission such as the remnants of exploded stars from high-energy regions of the universe (see Figure 1). It was deployed on July 23, 1999, from the Space Shuttle Columbia. Under the contract with NASA, SAO directs the science and flight operations of the Chandra X-ray Observatory from the Chandra X-ray Center. The Chandra X-ray Center also processes data collected by the Chandra X-ray Observatory and distributes the data to scientists around the world to analyze.

Figure 1. The National Aeronautics and Space Administration's (NASA) Chandra X-ray Observatory.



Image Credit: NASA.

Under the contract with NASA, SAO serves as a pass-through entity for awarding and providing funds for two types of grants—Chandra research grants and Einstein fellowship grants.³ The Chandra research grants program solicits research proposals to conduct space observations and analyze scientific data. The Einstein fellowship grants program provides funding for recent postdoctoral graduates to conduct research that is related to the science goals of the NASA Physics of the Cosmos program, including high-energy astrophysics relevant to the Chandra X-ray Observatory. Institutions of

³ A pass-through entity is a nonfederal entity that provides a subaward to carry out part of a federal program.

higher education; nonprofits, including SAO; and other federal agencies are eligible to participate in these grant programs.

Each year or cycle, the Chandra X-ray Center solicits proposals and awards approximately 200 Chandra grants and 13 Einstein fellowship grants.⁴ A Chandra research grant generally is for a period of 1 or 2 years. The Einstein fellowships last for 3 years, subject to a review after the second year and the availability of funds.

For purposes of this report, the Chandra research grants and Einstein fellowship grants will be referred to collectively as Chandra grants.

Four Stages for Chandra Grants

Chandra grants have four stages: (1) pre-award, (2) award, (3) monitoring, and (4) closeout.

During the pre-award stage, SAO's Chandra X-ray Center issues an annual call to submit grant proposals and carries out a peer review to select which proposals will receive a grant.

During the award stage, SAO enters into an agreement with the grant recipient stipulating the terms and conditions for the use of grant funds, including the period of time that funds are available.

During the monitoring stage, the recipient carries out the requirements of the agreement, submits invoices requesting funds, and submits financial and performance reports. Financial reports are used to report on expenditures. Performance reports include a description of the objectives of the research and the results obtained during the period of performance. SAO uses these reports to monitor the recipient's progress and compliance with the terms and conditions of the grants.

The closeout stage includes preparation and review of final reports. Closeout procedures ensure that the grant recipient has met all financial requirements, provided all final reports, and returned any unspent funds.

SAO's Roles and Responsibilities for Chandra Grants

SAO's Subawards Section has three grant specialists who oversee a portfolio of about 800 active grants. These specialists award grants, keep grant records, process payment requests, and track reports and other documentation from grant recipients. They also issue extensions when recommended by the Director of the Chandra X-ray Center and perform closeout functions.

⁴ A cycle is a period of time over which the Chandra X-ray Center uses the Chandra X-ray Observatory to make observations.

SAO's Financial Management Department performs accounting and budget functions for the grants received by SAO and prepares and submits the final financial reports for the SAO grants.

The Closeout Process for Chandra Grants

SAO's Subawards Section uses three different systems to administer the Chandra grants:

- Excel master spreadsheets that contain lists of all grant awards for each cycle or class. SAO updates the master spreadsheets throughout the award process to reflect any amendments to the grant such as a change in the period of performance or to close out a grant.
- Individual hard-copy files for each grant. These files include technical and cost proposals, invoices, financial and performance reports, and grant award documents.
- SAO issues a purchase order in ERP Financials to obligate the funds for each award and as a mechanism to pay grant recipients' invoices.

To begin the closeout process for a Chandra grant, the Subawards Section issues a Notice of Closeout to the grant recipient. The Notice of Closeout informs the recipient that the grant has expired and reminds the recipient of due dates for the final reports. If the final reports are not received by the due dates, the Subawards Section follows up by sending past due notices to the grant recipient.

Once the final reports are received, the Subawards Section sends the final performance reports to the Chandra X-ray Center for review and approval. The Subawards Section also reviews the final financial report to determine whether the recipient must refund any grant money to SAO. If there are any unspent funds remaining on the grant, the Subawards Section calculates the amount to be deobligated.⁵ The Subawards Section issues an amendment to the recipient that confirms grant closure, verifies receipt of the final reports, and states the final amount of the grant. If there are any unused funds, the Subawards Section deobligates them in ERP Financials, returning them to the Chandra contract to be used for other purposes such as salaries or administrative expenses.

⁵ Deobligation is the process of removing unspent funds remaining on a grant so that the funds can be used for other purposes.

RESULTS OF THE AUDIT

Seventy Percent of Chandra Grants Reviewed Had Final Reports That Were Not Submitted on Time

The Subawards Section has a process to help ensure that the final reports needed to close Chandra grants are submitted on time. However, OIG found that final reports for 52 (or 70 percent) of the 74 expired grants reviewed were not submitted on time. The final reports were between 1 and 659 days late. In addition, the grant specialists responsible for closing out the grants generally did not follow their process to send past due notices and were inconsistent in their follow-up activities. SAO grant specialists said a heavy workload and limited staff contributed to these problems.

Final Reports Were Late for 70 Percent of the Chandra Grants Reviewed

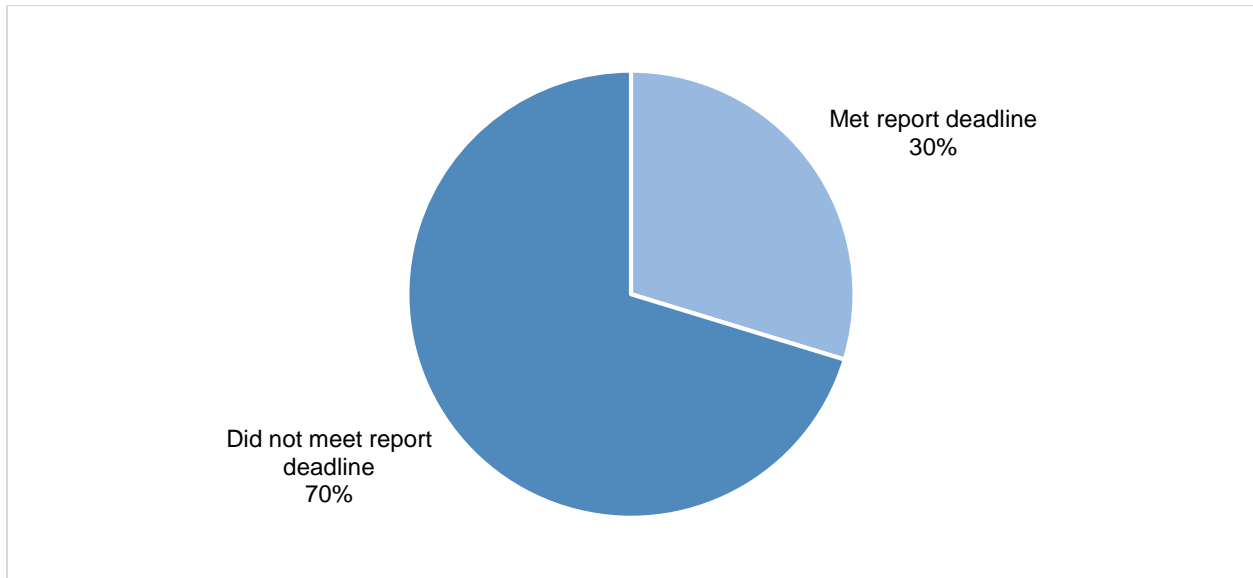
Under the terms and conditions of the awards, Chandra and Einstein grant recipients must submit final financial and performance reports to the Subawards Section by the due dates specified in the grant. For Chandra grants, the final financial and performance reports were due within 90 days following the end of the grant period.⁶ For Einstein grants, final financial reports were due within 90 days following the end of the grant period, and final performance reports were due by November 1 of the last year of the grant.⁷ To determine whether grant recipients submitted required reports on time, OIG reviewed 74 expired grants from Chandra Cycle 13 and the Einstein Class of 2012.⁸ As shown in Figure 2, OIG found that for 52 (or 70 percent) of the 74 grants reviewed, the recipients submitted one or both of the final reports after the required due dates.

⁶ SAO, *Cycle 13 Terms and Conditions for Chandra X-ray Observatory Observing Cycle Awards*, Article XIII, Clause D (Cambridge, MA: Sept. 1, 2011).

⁷ SAO, *2012-2013 Terms and Conditions for the Einstein Postdoctoral Fellowship Awards*, Article XIV, Clause E (Cambridge, MA: June 2012).

⁸ This sample included 32 grants to SAO recipients and 42 to non-SAO recipients.

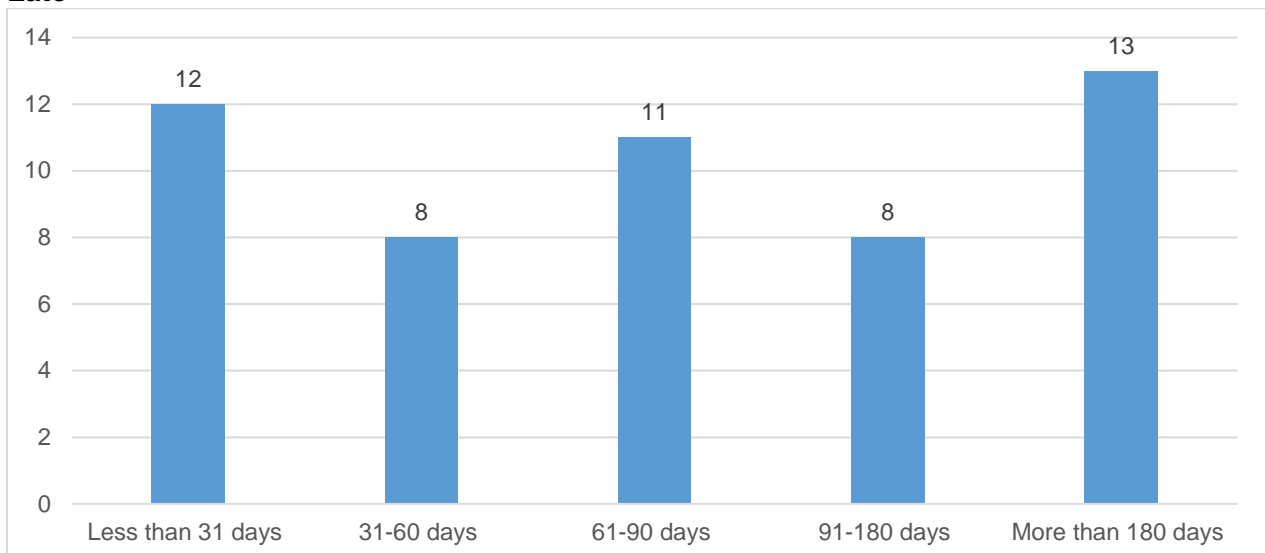
Figure 2. Percentage of Chandra Grants Reviewed That Met or Did Not Meet Final Report Deadlines



Source: Office of the Inspector General analysis of the Smithsonian Astrophysical Observatory's grant files for Chandra Cycle 13 and the Einstein Class of 2012.

For the 52 grants where the recipients did not meet the report deadlines, the final reports were an average of 129 days late. Of the 13 grants with final reports that were more than 180 days late, 6 reports were more than 1 year late, including 1 that was almost 2 years late. See Figure 3 for the number of days the 52 final reports were late.

Figure 3. Number of Chandra Grants Reviewed with Late Final Reports by Number of Days Late



Source: Office of the Inspector General analysis of the Smithsonian Astrophysical Observatory's grant files for Chandra Cycle 13 and the Einstein Class of 2012.

The 52 grants with late final reports involved both SAO and non-SAO recipients. OIG's analysis showed that SAO recipients were more likely to submit their final financial reports late, while non-SAO recipients were more likely to submit final performance reports late.

SAO's Subawards Section Did Not Consistently Implement Its Process for Following Up on Late Final Reports

The Subawards Section has a process, outlined in a flowchart, for following up on late final reports. The flowchart has steps for the grant specialists to send grant recipients up to three past due notices when the final reports are late.⁹ Each notice specifies a new report due date. If there is no response after the third notice, the grant specialist refers the matter to the Senior Grant Specialist. The Senior Grant Specialist sends a final notice informing the recipient of the remedies that SAO may take if final reports are not received. These remedies include, but are not limited to, withholding payments and disqualification for both new awards and amendments to existing awards.

Although the Subawards Section's flowchart identifies steps to follow up on late final reports, OIG's analysis showed that the grant specialists did not consistently implement them. Further, the flowchart provides no time frame for when the grant specialists should send the past due notices. While the time frame is not documented in the flowchart, the Senior Grant Specialist told OIG that the expectation is that grant specialists should send out the past due notices on late final reports within 1 week after the initial or revised report due dates.

OIG found that the grant specialists were inconsistent in sending out various past due notices. For example, the grant specialists did not send any past due notices for 24 (or 46 percent) of the 52 grants with late reports. Twenty-one of these grants had reports that were more than 1 week late, ranging from 8 to 381 days late. SAO was the recipient for two-thirds of these grants with late reports. See Appendix III for a table showing Chandra grants that had no past due notices sent.

For the remaining 28 grants (or 54 percent) with late reports, the grant specialists sent up to four past due notices. These reports were between 6 and 659 days late. OIG analysis showed that for 17 of those grants, the Subawards Section received the final reports by the revised due dates in the past due notices. For the remaining 11 grants, reports were not received by the revised due dates. In one case, the grant specialist sent all four past due notices, but the final performance report was not submitted by the due date in the last notice because the Einstein fellow was in a remote location with limited Internet access. For the other 10 grants, the grant specialists did not send additional past due notices even though final reports were not received by the revised due dates. See Appendix IV for a table showing Chandra grants that had past due notices sent.

⁹ See Subawards Section's flowchart, *Chandra Awards Closeout Process* (no date), in Appendix II.

OIG's analysis also showed that the grant specialists were inconsistent in how long they took to send the first, second, third, and fourth past due notices. For example, the grant specialists sent the first past due notices anywhere from 2 to 197 days following the initial report due dates, although the expectation was for the notices to be sent within 1 week. Based on this analysis, the Subawards Section was not monitoring to ensure that past due notices were being sent in a timely and consistent manner. See Appendix IV for a table showing the days elapsed between when notices were sent and the initial report due dates.

SAO's Senior Grant Specialist said that a limited staff of three grant specialists with a heavy workload, administering about 800 grants, is why the past due notices were inconsistently sent or not sent at all. The Manager of the Sponsored Programs and Procurement Department said that an administrative assistant was hired and will take over the job of sending out past due notices.

In certain cases, there may be factors outside of SAO's control that prevent grant recipients from responding promptly to past due notices. For example, one non-SAO grant recipient was unable to submit the final financial report because it did not have approved indirect cost rates for the appropriate fiscal year.¹⁰

By not having a detailed process for following up on late final reports that is consistently implemented and monitored, the Subawards Section risks extending the grant closeout process. Delays in receiving the final reports result in the grant specialists having to administer grants for an extended period. In addition, these delays unnecessarily slow the return of unused grant funds and the reporting of research results.

SAO Did Not Ensure That 79 Percent of Purchase Orders Were Closed in ERP Financials or That Nearly \$1 Million Was Deobligated in a Timely Manner

OIG found that the Subawards Section's process to close out Chandra grants generally did not include closing purchase orders in ERP Financials. As a result, purchase orders that remain open in ERP Financials are at risk of being used inappropriately. For example, funds could be added to the purchase orders, allowing unauthorized purchases to be made. Furthermore, the Subawards Section did not always deobligate funds in a timely manner.

¹⁰ Indirect costs represent a grant recipient's expenses that cannot be specifically identified with an individual grant project. Examples of indirect costs include central administrative services, maintenance of facilities, and security. Indirect costs are used to calculate indirect cost rates that must be approved by a cognizant agency. The indirect rate approval process can be lengthy and may delay grant closeout.

Chandra Grant Purchase Orders Were Not Closed in ERP Financials

According to Smithsonian policy, unit managers are responsible for monitoring remaining balances and ensuring that purchase orders are closed in ERP Financials upon final delivery and payment of a good or service.¹¹ To close a purchase order, the unit needs to change the purchase order status to “complete” in ERP Financials. This action initiates the release of any unexpended funds and prevents further use of the purchase order.

OIG found that the Subawards Section’s closeout process generally did not include closing purchase orders in ERP Financials when Chandra grants were completed. Specifically, OIG identified 3,655 purchase orders that were associated with Chandra grants in ERP Financials; these purchase orders were dated from September 2002 through June 2016. Only 124 of these purchase orders were closed or cancelled in ERP Financials. OIG’s analysis showed that 2,891 (or 79 percent) of these purchase orders were for grants completed as of June 2016 but remained open in ERP Financials. According to the Subawards Section’s records, some of these grants were completed in 2002.

The Manager of the Sponsored Programs and Procurement Department told OIG that SAO does not generally close purchase orders in ERP Financials, which is contrary to Smithsonian policy. Rather, when the recipient does not spend the full grant amount, SAO issues a change order to have the purchase order equal the amount spent on the grant. This step removes any remaining funds on the purchase order, and SAO interprets the purchase order to be closed. However, by not changing the status of the purchase order in ERP Financials, management cannot rely on this field to provide accurate data on the number of active or closed purchase orders. Federal internal control guidance emphasizes the importance of having data that are reasonably free from error and bias and that faithfully represent what they purport to represent.¹²

Funds Remained on Chandra Grant Purchase Orders

OIG also identified \$960,894 from 217 purchase orders for completed Chandra grants that SAO had not deobligated in ERP Financials. Specifically, the Subawards Section did not deobligate these funds at the same time as other closeout procedures were performed on these grants.

In May and June 2016, SAO’s Subawards Section completed a special project to deobligate \$521,197 in unspent funds from 160 of the 217 purchase orders. Later, the Subawards Section deobligated an additional \$364,456 from 38 purchase orders. As of February 2018, \$75,241 of unexpended funds remained on completed Chandra grants. Because SAO is adding unnecessary steps to remove unused grant funds, its process of

¹¹ Smithsonian Directive 314, *Contracting, Procurement and Contracting Procedures Manual* (Sept. 23, 2011).

¹² GAO, *Standards for Internal Control in the Federal Government*, GAO-14-740G (Washington, D.C.: September 2014).

using change orders to deobligate funds is less efficient than the Smithsonian's process for closing purchase orders. If the grant specialists had followed the Smithsonian's process for closing purchase orders, unexpended funds would have been automatically deobligated, and the status of the Chandra grant purchase orders in ERP Financials would be accurate.

CONCLUSIONS

An effective grant closeout process is important to properly manage the grants awarded under the NASA Chandra contract and to minimize SAO's portfolio of grants that require continued monitoring. While SAO has established a Chandra grant closeout process, it needs to strengthen this process by adding specific requirements to follow up on late final reports so that SAO can close those grants. In addition, SAO does not follow Smithsonian procedures for closing purchase orders in ERP Financials nor does it ensure that unexpended funds are deobligated in a timely manner. Periodic monitoring of purchase orders would help ensure that purchase orders are properly closed and that unexpended funds are timely deobligated. Closing purchase orders for completed Chandra grants in ERP Financials reduces the risk of funds being added to these purchase orders to make unauthorized purchases.

RECOMMENDATIONS

To improve the grant closeout process, OIG recommends that the Director of SAO ensure that the Manager of the Sponsored Programs and Procurement Department:

1. Enhance written procedures for the grant closeout process to include
 - a. timelines for sending past due notices on late final reports and
 - b. closing purchase orders in ERP Financials in accordance with Smithsonian policy and procedures.
2. Identify and close purchase orders for completed Chandra grants in ERP Financials.
3. Develop and implement procedures to monitor that
 - a. past due notices are sent in accordance with the revised grant closeout procedures and
 - b. purchase orders for completed Chandra grants are closed in ERP Financials.

MANAGEMENT RESPONSE AND OIG EVALUATION

OIG provided a draft of this report to SAO management for review and comment. SAO management provided written comments, which are found in Appendix V. SAO management concurred with all three recommendations that OIG made in its draft report. OIG evaluated management's response and determined that its planned actions address the intent of the three recommendations.

Appendix I

OBJECTIVE, SCOPE, AND METHODOLOGY

The objective of this audit was to assess the effectiveness of the processes that the Smithsonian Astrophysical Observatory (SAO) uses to close out grants under the National Aeronautics and Space Administration's (NASA) Chandra contract. The Office of the Inspector General (OIG) focused on the closeout process for the Chandra grants and Einstein fellowships because of the financial importance of the NASA contract to SAO.

To obtain an understanding of SAO's grants management processes, OIG reviewed relevant Smithsonian Institution (Smithsonian) and SAO policies and procedures; the *Cycle 13 Terms and Conditions for Chandra X-ray Observatory Observing Cycle Awards*; and the *2012-2013 Terms and Conditions for the Einstein Postdoctoral Fellowship Awards*. OIG also reviewed the *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (Uniform Guidance); the *Uniform Administrative Requirements for Grants and Agreements with Institutions of Higher Education, Hospitals, and Other Non-Profit Organizations* (OMB Circular A-110); and applicable Smithsonian Enterprise Resource Planning Financials (ERP Financials) End User Training manuals. OIG interviewed SAO management and staff in the Director's Office; the Sponsored Programs and Procurement Department and its Subawards Section; the Financial Management Department; and the Scientific Divisions and Departments. OIG also interviewed management and staff in the Smithsonian's Office of Sponsored Programs and Office of Finance and Accounting. In addition, OIG reviewed the Smithsonian's and SAO's Circular A-133 audit reports; reports from three Offices of Inspector General and the Government Accountability Office; and an internal review performed at SAO.

OIG identified a population of 215 expired grants from Chandra Cycle 13 and the Einstein Class of 2012. OIG compiled this population from the Subawards Section's master spreadsheets for Chandra Cycle 13 and the Einstein Fellows, which included the Class of 2012. To identify expired grants, OIG added 90 days to the grants award end dates. Those grants with an award end date and 90 days occurring on or before May 11, 2016, comprised the population of expired grants. This population was divided into two groups that included 32 grants to SAO and 183 grants to institutions other than SAO.

To assess the effectiveness of SAO's controls over the closeout process, OIG separately reviewed the two groups. OIG reviewed all of the 32 SAO grants and selected a simple random sample of 42 of the 183 non-SAO grants. OIG chose to review the entire population of SAO grants because SAO is both the recipient of and administrator for these grants. For reporting purposes, OIG combined the results of these reviews and therefore did not project the results of the simple random sample to the population. OIG obtained the hard-copy files for these 74 grants and reviewed them to determine if final performance and financial reports were received by their due date and to evaluate the

follow-up actions taken by the Subawards Section on late reports. OIG also assessed the timeliness and accuracy of the grant closeout process by (1) verifying that the files contained all required final reports; (2) recalculating deobligation amounts; (3) verifying the accuracy of final grant amounts in the hard-copy files, on the master spreadsheets, and in ERP Financials; and (4) assessing the timeliness for closing the grant award and deobligating funds in ERP Financials.

To assess the effectiveness of SAO's controls over closing purchase orders in ERP Financials, OIG identified 3,655 purchase orders associated with Chandra grants and Einstein fellowships from September 2002 through June 2016. OIG compared the status of the purchase orders in ERP Financials to the status on the Subawards Section's master spreadsheets as of June 15, 2016, to determine if there were purchase orders for completed grants that remained open in ERP Financials.

To determine if funds were deobligated in a timely manner from Chandra grants, OIG ran queries from ERP Financials to identify grants that had unspent funds remaining on them. OIG matched these queries to the Subawards Section's master spreadsheets to identify completed grants with funds remaining on the purchase orders in ERP Financials. OIG also obtained documentation from SAO's special project to deobligate unspent funds in May and June 2016. OIG verified that these funds were deobligated and reviewed data in ERP Financials to determine when the funds were deobligated.

OIG assessed the reliability of data from ERP Financials by (1) electronically testing the data to identify and address data anomalies, (2) interviewing Smithsonian and SAO staff knowledgeable about the data, (3) obtaining and reviewing information on the audits and controls that the Smithsonian uses to ensure data reliability, and (4) tracing data to documents in the hard-copy grant files. OIG determined that the data were sufficiently reliable for the purposes of this report.

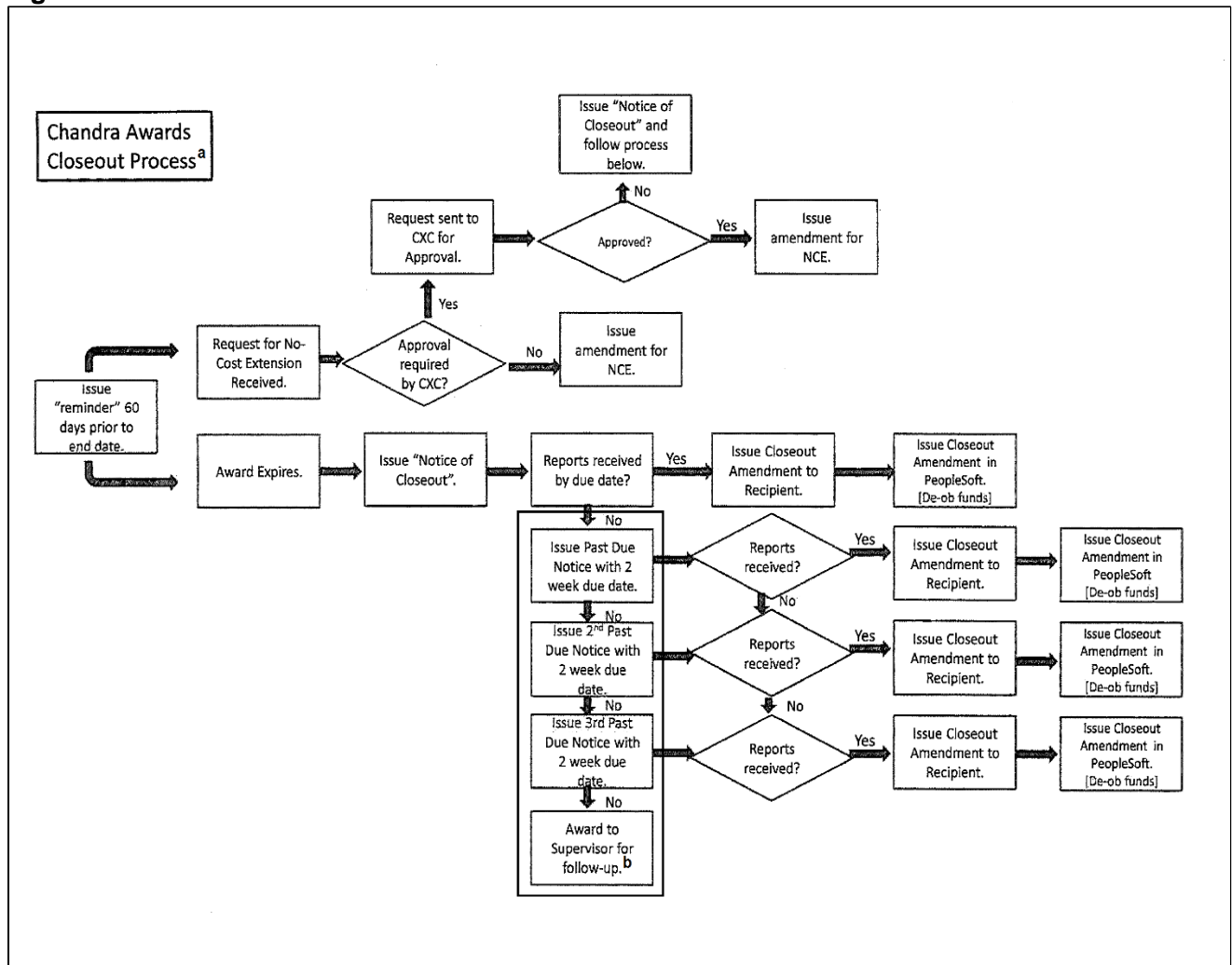
OIG conducted this performance audit in Washington, D.C., and Cambridge, Massachusetts, from November 2015 through May 2018 in accordance with generally accepted government auditing standards. Those standards require that OIG plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for its findings and conclusions based on the audit objective. OIG believes that the evidence obtained provides a reasonable basis for the findings and conclusions based on its audit objective.

Appendix II

CHANDRA GRANTS CLOSEOUT PROCESS

The Subawards Section's flowchart presents the process to close out Chandra grants (see Figure 4). The steps bounded by the rectangle represent the final report follow-up process.

Figure 4. Chandra Grants Closeout Process



Source: Smithsonian Astrophysical Observatory Subawards Section.

Notes:

^a For the purposes of this report, the Office of the Inspector General uses the term "grants" to refer to the Chandra awards.

^b The Supervisor is the Senior Grant Specialist.

Legend: CXC=Chandra X-ray Center, NCE=no-cost extension, De-ob funds=deobligate funds

Appendix III

CHANDRA GRANTS WITH NO PAST DUE NOTICES SENT

	Recipient institution	Report type	Number of days report was late
1	SAO	Financial	1
2	Non-SAO	Performance	3
3	SAO	Performance	4
4	SAO	Performance	8
5	Non-SAO	Financial	17
6	Non-SAO	Performance	25
7	SAO	Financial	30
8	SAO	Financial	43
9	Non-SAO	Financial	53
10	SAO	Performance	55
11	Non-SAO	Financial	55
12	Non-SAO	Financial	65
13	SAO	Financial	68
14	SAO	Financial	70
15	Non-SAO	Financial	73
16	SAO	Financial	90
17	SAO	Financial	105
18	SAO	Financial	108
19	SAO	Financial	136
20	SAO	Financial	172
21	SAO	Financial	176
22	SAO	Financial	182
23	SAO	Financial	200
24	Non-SAO	Performance	381

Source: Office of the Inspector General's analysis of the Smithsonian Astrophysical Observatory's (SAO) grant files for Chandra Cycle 13 and the Einstein Class of 2012.

Appendix IV


CHANDRA GRANTS WITH PAST DUE NOTICES SENT

	Recipient institution	Report type	Days elapsed between first notice and report due date	Days elapsed between second notice and report due date	Days elapsed between third notice and report due date	Days elapsed between fourth notice and report due date	Number of days report was late
1	Non-SAO	Performance	2				6
2	Non-SAO	Performance	2	17			31
3	Non-SAO	Performance	2	17	60		66
4	Non-SAO	Performance	4				6
5	Non-SAO	Financial	4	22	103		609
6	Non-SAO	Performance	5				8
7	Non-SAO	Performance	5	23			36
8	Non-SAO	Performance	11	93	197	200	248 ^a
9	SAO	Performance	12				14
10	Non-SAO	Financial	16				16
11	Non-SAO	Financial	21				78
12	Non-SAO	Performance	22	86	303		469
13	Non-SAO	Financial	24	45			70
14	SAO	Financial	28				659
15	SAO	Financial	29				186
16	SAO	Performance	37				39
17	SAO	Performance	46				48
18	Non-SAO	Financial	48				75
19	Non-SAO	Performance	54	106			107
20	SAO	Performance	72				101
21	Non-SAO	Financial	81				88
22	SAO	Performance	84				85
23	Non-SAO	Performance	88	115			115
24	Non-SAO	Performance	154	313	373	392	393
25	Non-SAO	Performance	175				185
26	Non-SAO	Performance	176	328	394	413	414
27	Non-SAO	Performance	195				201
28	SAO	Financial	197				222

Source: Office of the Inspector General's analysis of the Smithsonian Astrophysical Observatory's (SAO) grant files for Chandra Cycle 13 and the Einstein Class of 2012.

Note:

^a SAO's Subawards Section sent four past due notices on this grant but did not receive the final report by the due date in the fourth notice.

Legend:  =The Subawards Section did not need to send additional past due notices because reports were received by the revised due dates.

 =The Subawards Section did not send additional past due notices when reports were not received.

Appendix V

MANAGEMENT RESPONSE



Smithsonian Astrophysical Observatory
Director's Office

MEMORANDUM

To: Cathy Helm, Inspector General

Attn: Joan Mockridge, Assistant Inspector General for Audits
 Rebecca Rider, Auditor

Cc: Al Horvath, Under Secretary for Finance and Administration / Chief Financial Officer
 John Davis, Provost / Under Secretary Museums, Education and Research
 Greg Bettwy, Chief of Staff, Office of the Secretary
 Porter N. Wilkinson, Chief of Staff to the Board of Regents
 Judith Leonard, General Counsel
 Roger Brissenden, Deputy Director, Smithsonian Astrophysical Observatory
 Joseph Lendall, Manager, SAO Sponsored Programs & Procurement Department
 Carol Dzengelewski, Grants Officer, SAO Sponsored Programs & Procurement Department

From: Charles Alcock, Director, Smithsonian Astrophysical Observatory *Charles Alcock*

Date: April 5, 2018

Re: Smithsonian Astrophysical Observatory (SAO) Management Response to OIG Audit, "Smithsonian Astrophysical Observatory Can Improve the Closeout Process for Chandra Grants"

Thank you for providing me a copy of the draft report on the Office of the Inspector General (OIG) audit, "Smithsonian Astrophysical Observatory Can Improve the Closeout Process for Chandra Grants". We appreciate the time taken by the OIG to examine the Chandra Grants program and assess the effectiveness of the processes SAO uses for the closeout phase of the program. My staff, including the Manager, Sponsored Program and Procurement Department (SPPD) and the supervisor of the Chandra Grants program in the Subawards section in SPPD, have reviewed the audit findings, issues presented and recommendations for action included in the report. I hereby submit the following comments on the results of the audit and actions already taken or planned to be taken to address each of the recommendations. We appreciate the opportunity to comment prior to the issuance of your final report.

RESULTS OF THE AUDIT

Issue 1: Seventy Percent of Chandra Grants Reviewed Had Final Reports That Were Not Submitted on Time

Comment: The Subawards section of SAO SPPD has a process to help ensure that all final reports (technical and financial) needed to close out Chandra grants are submitted on time, with a procedure for notifying grant recipients of impending and/or past due reporting requirements. Workload challenges, however, contributed to inconsistencies in our efforts to follow-up on the past due notices, and other steps in the grant award administration process were given a higher priority. Recognizing the importance of administering the Chandra Grants program effectively, a new grants administrative staff assistant has been hired, with one of this new staff assistant's duties being more comprehensive and timely follow-up on notices of impending and/or past due notices. We will be enhancing procedures and implementing a process for monitoring the consistency and effectiveness of these procedures, further details of which are presented (as *Actions Planned*) in the Recommendations section below.

Issue 2: SAO Did Not Ensure That 79 Percent of Purchase Orders Were Closed in ERP Financials or That Nearly \$1 Million Was Deobligated in a Timely Manner

Comment: The process of closing out Chandra grants involves liquidating the unexpended funds on each closed award ("deobligate") by reducing the purchase order amount ("obligation") in ERP Financials to the final amount expended on the award. This process frees up funding, allowing such funds to be reallocated for other or future/additional Chandra grant awards. Workload challenges and the number of delinquent final reports on completed grants (*which are required before the grant purchase order can be liquidated properly*) contributed to the amount of unexpended funds that were being encumbered by the grant purchase orders in ERP even though the grants' performance periods had ended. As noted in the audit report, the supervisor of the Chandra Grants program in the Subawards section in SPPD has completed a special project to deobligate significant unspent funds on many older completed awards. Additionally, and as noted previously, a new grants administrative staff assistant has been hired, and with some shifts in workload, this will afford the grants specialist more time to spend on the proper and timely liquidation of grant purchase orders in ERP Financials. Smithsonian policy on closing out purchase orders includes a step that changes the purchase order status to "complete" in ERP Financials. This action releases any unexpended funds and prevents further use of the purchase order. While the SAO process of reducing the purchase order amount in ERP Financials to the final amount expended on the award accomplishes the same result financially (i.e. liquidating the unspent funds) as changing the status to "complete", we recognize the importance of also changing the status in order to prevent further use of the purchase order and also to have accurate data on the number of active vs. closed purchase orders in ERP. Therefore, we will enhance our process for closing grant purchase orders in ERP Financials to include the step of changing the status to "complete". Further details are presented (as *Actions Planned*) in the Recommendations section below.

RECOMMENDATIONS (from Audit Report)

To improve the grant closeout process, OIG recommends that the Director of SAO ensure that the Manager of the Sponsored Programs and Procurement Department:

1. Enhance written procedures for the grant closeout process to include

- a. timelines for sending past due notices on late final reports and
- b. closing purchase orders in ERP Financials in accordance with Smithsonian policy and procedures.

Comment: Concur

Actions Planned: The supervisor of the Chandra Grants program in the Subawards section will enhance written procedures by updating the current procedure and process flow chart for the closeout process, to include specific and appropriate timelines for sending past due notices, as well as instructions on how to change the purchase order status to "complete" in ERP. After review and concurrence by the Manager, SPPD, the supervisor will then review the enhanced procedures in a session with all the staff in the Chandra Grants group.

Target Date for Completion: May 31, 2018

2. Identify and close purchase orders for completed Chandra grants in ERP Financials.

Comment: Concur

Actions Planned: Once the enhanced written procedures are completed with instructions on how to change the purchase order status to "complete" in ERP, all newly closed awards will be now be processed as "complete" in ERP. For the nearly 3,000 already closed awards, those purchase order will be processed to status "complete" as time permits over the coming months. We will strive to have these all closed out in ERP prior to the start of the next Chandra award cycle, Cycle 20, which commences October 1, 2018.

Target Date for Completion: September 30, 2018

3. Develop and implement procedures to monitor that

- a. past due notices are sent in accordance with the revised grant closeout procedures and
- b. purchase orders for completed Chandra grants are closed in ERP Financials.

Comment: Concur

Actions Planned: In addition to the enhanced written procedures, the supervisor of the Chandra Grants program in the Subawards section will also develop and implement measures to monitor staff adherence to these procedures. The measures that will be taken will include: (a) creation of a close out audit sheet, which the supervisor will use to conduct reviews of final report notices and tracking, as well as PO closings in ERP; these reviews will be conducted monthly for the first six (6) months of implementation and then quarterly thereafter, and (b) staff with responsibilities for sending final report notices and closing out purchase orders in ERP, including the staff assistant and the grants specialists, will have their performance plans updated to include a specific element with a required performance standard related to these activities.

Target Date for Completion: May 31, 2018

Please direct any questions you may have regarding the information included herein to Joe Lendall, Manager, SAO-SPPD, for a coordinated response. Joe may be reached by telephone at [REDACTED] or via email at [REDACTED]



Smithsonian Institution
Office of the Inspector General

HOTLINE

202-252-0321

oighotline@oig.si.edu

<http://www.si.edu/oig>

or write to

Office of the Inspector General
P.O. Box 37012, MRC 524
Washington, D.C. 20013-7012

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Information provided is confidential.