



U.S. ENVIRONMENTAL PROTECTION AGENCY

OFFICE OF INSPECTOR GENERAL

# Cloud Oversight Resulted in Unsubstantiated and Missed Opportunities for Savings, Unused and Undelivered Services, and Incomplete Policies

Report No. 14-P-0332

August 15, 2014



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## Report Contributors:

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## Abbreviations

CFR	Code of Federal Regulations
CIO	Chief Information Officer
EPA	U.S. Environmental Protection Agency
FAR	Federal Acquisition Regulation
FY	Fiscal Year
GSA	General Services Administration
IaaS	Infrastructure-as-a-Service
IPv6	Internet Protocol version 6
IT	Information Technology
NCC	National Computer Center
NIST	National Institute of Standards and Technology
OARM	Office of Administration and Resources Management
OEI	Office of Environmental Information
OIG	Office of Inspector General
OMB	Office of Management and Budget
TIC	Trusted Internet Connection

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# At a Glance

## Why We Did This Review

We sought to determine whether the U.S. Environmental Protection Agency (EPA) had:

- (1) implemented its cloud initiatives in accordance with the Federal Cloud Computing Strategy and associated requirements, and
- (2) developed formal processes to monitor cloud vendors.

Cloud computing describes a broad movement to treat information technology (IT) services as a commodity with the ability to dynamically increase or decrease capacity to match usage needs. In December 2010, the U.S. Chief Information Officer issued a "Cloud First" policy requiring that agencies default to cloud-based solutions for new IT deployments whenever a secure, reliable and cost-effective cloud option exists.

## This report addresses the following EPA goal or cross-agency strategy:

- *Embracing EPA as a high-performing organization.*

For further information, contact our public affairs office at (202) 566-2391.

The full report is at:  
[www.epa.gov/oig/reports/2014/20140815-14-P-0332.pdf](http://www.epa.gov/oig/reports/2014/20140815-14-P-0332.pdf)

## Cloud Oversight Resulted in Unsubstantiated and Missed Opportunities for Savings, Unused and Undelivered Services, and Incomplete Policies

### What We Found

The EPA developed processes to monitor cloud vendors. However, controls for the EPA's cloud computing initiatives are incomplete and need improvement. Specifically:

**Improved oversight could help the EPA achieve objectives for the millions spent for cloud services and identify potential cost savings.**

- The EPA's cost-benefit analysis did not adhere with guidance.
- The EPA paid full price for services not performed.
- The EPA entered into a cloud infrastructure contract that could not be used to host applications because it did not meet federal requirements. Further, there was no documented analysis to determine whether the EPA should continue with the contract.
- The EPA had not performed an analysis to determine whether it would be in the EPA's best interest to convert its internal infrastructure to meet all of the National Institute of Standards and Technology essential characteristics of a cloud.
- The EPA's Office of Environmental Information did not implement a strategy to evaluate the EPA's entire portfolio of IT applications to determine which applications can be consolidated, retired or moved to the cloud.
- The EPA's policies and procedures for moving to the cloud are incomplete and need improvement.

As a result, the EPA paid \$2.3 million for services that were not fully rendered or did not comply with federal requirements. Also, EPA management does not have reasonable assurance that the agency's cloud initiatives will be effective, efficient, and in compliance with applicable laws and regulations.

### Recommendations and Planned Corrective Actions

We recommend that the Assistant Administrator for Environmental Information and Assistant Administrator for Administration and Resources Management undertake a number of corrective actions to address deficiencies in the EPA's cloud computing initiatives, including: improving related policies and procedures; providing additional training and oversight to contracting officers; performing documented cost benefit analyses that are in compliance with federal requirements; and implementing a strategy to perform a documented analysis of all the assets in the EPA's IT portfolio to determine which assets should be consolidated, retired or moved to the cloud. The agency indicated it has taken action on two of the 11 recommendations. The remaining recommendations are considered unresolved pending the agency's response to the final report.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

THE INSPECTOR GENERAL

August 15, 2014

**MEMORANDUM**

**SUBJECT:** Cloud Oversight Resulted in Unsubstantiated and Missed Opportunities for Savings, Unused and Undelivered Services, and Incomplete Policies  
Report No. 14-P-0332

**FROM:** Arthur A. Elkins Jr. 

**TO:** Renee Wynn, Acting Assistant Administrator and Chief Information Officer  
Office of Environmental Information

Craig E. Hooks, Assistant Administrator  
Office of Administration and Resources Management

This is our report on the subject audit conducted by the Office of Inspector General (OIG) of the U.S. Environmental Protection Agency (EPA). This report contains findings that describe the problems the OIG has identified and corrective actions the OIG recommends. This report represents the opinion of the OIG and does not necessarily represent the final EPA position. Final determinations on matters in this report will be made by EPA managers in accordance with established audit resolution procedures.

The offices responsible for areas covered in this report include the Office of Administration and Resources Management's (OARM's) Office of Acquisition Management and the Office of Environmental Information's (OEI's) Office of Technology Operations and Planning.

**Action Required**

OARM indicated that it completed agreed-upon corrective actions associated with recommendations 2 and 7 and we are closing those recommendations in our audit tracking system upon issuance of this report. OEI's responses for the remaining nine recommendations did not provide sufficient information on intended corrective actions to allow us to properly determine whether the intent of these recommendations was satisfied. These recommendations will remain unresolved until OEI provides planned corrective actions in response to the final report.

In accordance with EPA Manual 2750, OEI is required to provide a written response to this report within 60 calendar days. OEI should include planned corrective actions and completion dates for all unresolved recommendations. OEI's response will be posted on the OIG's public website, along with our memorandum commenting on OEI's response. OEI's response should be provided as an Adobe PDF file that complies with the accessibility requirements of Section 508 of the Rehabilitation Act of 1973, as amended. The final response should not contain data that should not be released to the public; if the response contains such data, OEI should identify the data for redaction or removal along with corresponding justification.

We will post this report to our website at <http://www.epa.gov/oig>.

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# Chapter 1

## Introduction

### Purpose

We sought to determine whether the U.S. Environmental Protection Agency (EPA) had: (1) implemented its cloud initiatives in accordance with the Federal Cloud Computing Strategy and associated requirements, and (2) developed formal processes to monitor cloud vendors.

### Background

In December 2010, the U.S. Chief Information Officer (CIO) issued a “Cloud First” policy within the *25-Point Implementation Plan to Reform Federal Information Technology Management* published by the White House. In February 2011, the U.S. CIO also issued the Federal Cloud Computing Strategy that identified cloud computing as having the potential to play a major part in achieving efficiencies in the federal government’s information technology (IT) environment. Efficiencies potentially improved by cloud computing include asset utilization and the reduction of duplicative systems.

According to the National Institute of Standards and Technology (NIST), cloud computing is a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources—such as computer servers, storage, software applications and Web services—that can be provisioned and released with minimal management effort or service provider interactions. In other words, in a cloud environment, IT resources are available to users as needed using a pay-as-you-go business model.

The Government Accountability Office has indicated that cloud computing can potentially provide several benefits over current systems, including faster deployment of computing resources, a decreased need to buy hardware or build data centers, and more robust collaboration capabilities. Per the Federal Cloud Computing Strategy, cloud computing can also:

- Provide lower individual usage costs and centralize infrastructure costs via realized economies of scale.
- Allow users to pay for what they consume.
- Allow users to increase or decrease their usage.
- Leverage the shared underlying resources.

## **Responsible Offices**

The EPA's Office of Environmental Information (OEI) and Office of Administration and Resources Management (OARM) have key responsibilities regarding the EPA's migration to the cloud. Within those two offices:

- OEI's Office of Technology Operations and Planning provides technology services and manages the EPA's IT investments and infrastructure. The Office of Technology Operations and Planning oversees IT operations and security (including IT investment management), enterprise architecture, application development and hosting, high performance computing, and development of policies and standards to guide IT expenditures and operations.
- OARM's Office of Acquisition Management is responsible for planning, awarding and administering contracts for the agency, including issuing and interpreting acquisition regulations, administering training for contracting and program acquisition personnel, providing advice and oversight to regional procurement offices, and providing IT improvements for acquisition.

## **Guidance Issued**

On January 24, 2011, the EPA's Assistant Administrator for OEI (the EPA's CIO) issued a memorandum in reference to the *25-Point Implementation Plan to Reform Federal Information Technology Management* published by the White House. The memorandum established OEI's National Computer Center (NCC) as the agency's focal point for acquiring cloud solutions and appointed OEI as the lead for developing a cloud computing strategy for both private and public cloud usage. Although the memorandum indicated that the NCC is the focal point for acquiring cloud solutions, OEI indicated that this is only limited to efforts to provide cloud services via the EPA's internal private cloud services provided by the NCC and external cloud services obtained by the NCC via the General Services Administration (GSA) Infrastructure-as-a-Service (IaaS) Bulk Purchase Agreement.

The EPA's Assistant Administrator for OEI and CIO issued a memorandum on Cloud Computer Services Security Requirements on September 6, 2011, to provide information for when considering cloud computing solutions. The memo indicates that the EPA needs to conduct control assessments on cloud provider systems to determine what, if any, controls need to be implemented by the provider or by the EPA. This memo also indicates that systems used by cloud providers shall obtain an Authorization to Operate by an EPA official before EPA information is stored, processed or transmitted on the systems.

Additionally, the EPA's CIO approved a System Life Cycle Management Policy and Procedure on September 21, 2012. The policy applies to systems developed on behalf of the EPA by vendors irrespective of where the IT systems are hosted,

including cloud-based solutions. The System Life Cycle Management Procedure also indicated that if the application will be hosted in a cloud-based environment the system must adhere to the additional controls published by the Federal Risk and Authorization Management Program.<sup>1</sup>

The EPA also issued Enterprise Roadmap 2012, which states that in fiscal year (FY) 2012 all of the EPA will be able to obtain cloud computing services from a GSA-authorized external cloud services vendor authorized for low-sensitivity applications and an EPA-hosted private cloud authorized for medium-sensitivity applications. The Roadmap indicated that OEI will provide support for evaluating cloud computing alternatives as part of the Capital Planning and Investment Control process, and will assist transitioning agency applications into the cloud computing infrastructure. Furthermore, the Roadmap stated that the EPA will default to cloud-based solutions whenever a secure, reliable and cost-effective cloud option exists.

## Scope and Methodology

We performed this audit from January 2013 to April 2014 at the EPA headquarters in Washington, D.C.<sup>2</sup> We performed this audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient and appropriate evidence to provide a reasonable basis for our findings and conclusions based on the audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

As a part of this review, we looked at the following two EPA cloud initiatives:

1. **My Workplace:** OEI awarded a vendor a contract to provide Software-as-a-Solution for an email and collaboration suite. This contract also requires the vendor to provide support for OEI's internal infrastructure used to host internal email and other applications. OEI has indicated that this infrastructure will not go away before 2019. Services provided by My Workplace include email, calendar, contacts, collaborative document editing and workspaces, Web conferencing, and other collaboration activities.
2. **IaaS contract:** The OEI awarded its IaaS contract through a GSA Blanket Purchase Agreement. The EPA plans to use this IaaS contract to make cloud

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<sup>1</sup> The Federal Risk and Authorization Management program is a governmentwide program that provides a standardized approach to security assessment, authorization, and continuous monitoring for cloud products and services.

<sup>2</sup> The audit was performed in Washington, D.C., but we conducted video and telephone interviews with EPA points of contact who are located in North Carolina.

computing resources available agencywide for low-sensitivity applications through the EPA's Working Capital Fund.

We reviewed the EPA's policies and procedures related to cloud computing to determine whether they were aligned and implemented in accordance with federal cloud computing policies. We limited the review of the My Workplace and IaaS initiatives to: (1) planning of the projects, and (2) the extent of the use of these cloud initiatives. We did not perform detailed reviews of the associated contracts. We made inquiries to EPA regions and program offices to collect information related to their plans for migrating applications from the EPA's infrastructure that was used to host internal email. We analyzed the agency's key cloud computing documents and related documentation. We examined the Federal Acquisition Regulation (FAR) and guidance published by the Office of Management and Budget (OMB) and NIST to gain an understanding of federal cloud computing recommendations and requirements.

Further, we interviewed and collected documentation from OARM's Office of Acquisition Management and OEI's Office of Technology Operations and Planning management and staff responsible for planning, procuring, maintaining and monitoring the agency's cloud computing services. We found no significant deficiencies associated with the EPA's monitoring of the cloud vendors.

# Chapter 2

## Improvements Needed in Email Cloud Implementation

The EPA’s cost-benefit analysis of and modifications for the agency’s email cloud computing implementation was not performed in compliance with EPA and federal guidance. OMB Circular A-94 Revised indicates that a cost-benefit analysis is recommended as the technique to use in a formal economic analysis of government programs and projects.<sup>3</sup> The cost-benefit analysis included in-house costs normally excluded. Also, the OARM contracting officer did not negotiate and issue a written modification prior to performance and did not seek an equitable reduction in price to the contract for work not performed as specified in the contract, as required by the FAR.<sup>4</sup> As a result, by including costs that would not normally be considered in a cost-benefit analysis, it is questionable whether the agency will realize the estimated savings used to justify moving email to the cloud. Additionally, inaction by the contracting officer resulted in the agency paying for services it did not receive.

### Improvements Needed for Email Cloud Analysis

The EPA’s cost-benefit analysis, included in the Collaborative Tools in the Cloud Business Case Presentation for migrating email and collaborative tools, dated April 2012, did not adhere with EPA and federal guidance. Table 1 shows the estimated costs OEI used in 2012 to justify its decision for not keeping email services in house and migrating email to the cloud. Using OEI’s cost-benefit analysis, there is an estimated savings of \$3,481,000, based on FY 2012 estimated costs derived from the Working Capital Fund billing rates as of April 2012.

**Table 1: OEI estimated cost projections**

	FY 2013	FY 2014	FY 2015	Totals
OEI’s estimated costs for keeping email services in house in FY 2012	\$12,061,000	\$12,061,000	\$12,061,000	\$36,183,000
OEI’s estimated costs for moving email to the cloud	14,221,000	9,454,000	9,027,000	32,702,000
<b>OEI’s estimated savings</b>	<b>(\$2,160,000)</b>	<b>\$2,607,000</b>	<b>\$3,034,000</b>	<b>\$3,481,000</b>

Source: Information provided by OEI.

The EPA’s System Life Cycle Management Requirements Guidance refers to OMB Circular A-94 Revised for guidance when performing a cost-benefit analysis. OEI’s Business Case Presentation made April 2012 included the cost-benefit analysis that used Working Capital Fund figures that included \$2,142,000 in hardware costs used in the estimated cost of keeping the email services

<sup>3</sup> See OMB Circular A-94 Revised Section 5.

<sup>4</sup> The Code of Federal Regulations (CFR), in 48 CFR Subsections 42.302(b), 43.204(b)(2), 43.103, and 43.201.

in-house. OEI representatives indicated that these hardware costs included costs for administrative support and sunk costs such as hardware depreciation.

Per OMB Circular A-94 Revised, these costs are not normally included and should be excluded from a cost-benefit analysis.<sup>5</sup> The administrative cost is an indirect cost that cannot be assigned to one service but, rather, is a cost divided among all OEI services. Additionally, the depreciation cost reflects funds spent and is not a current cash expense. By including costs for the in-house alternative that would not normally be considered in a cost-benefit analysis, it is questionable whether the agency will realize the estimated savings indicated. Additionally, the cost-benefit analysis did not include a statement of the assumptions, the rationale behind them, and a review of strengths and weaknesses as required by OMB Circular A-94 Revised.<sup>6</sup>

OEI pointed out that it believed that the email and collaborative tools cloud initiative was an acquisition of commercial-type services by government or contractor operation and was exempt from OMB Circular A-94 Revised. That circular indicates that OMB Circular A-76 Revised is the guidance for the acquisition of commercial-type services by government or contractor operation.<sup>7</sup> Subsequent to the issuance of the draft report, OEI indicated that it now believed OMB A-94 Revised was applicable.

Since OEI did not perform a cost-benefit analysis that was in compliance with OMB guidelines, it is questionable whether the agency will realize its projected cost savings.

## **EPA Paid for Email and Collaboration Moving Services Not Received**

The EPA paid for services not received on the contract to move the EPA's email and collaboration services to the cloud. The contract, as modified, included the requirement for the vendor to transfer all the EPA's email to the cloud within 5 months of the award of the contract.

After entering into the contract, OEI indicated that the vendor stated it could not transfer all of the email in the timeframe required by the contract. As a result, OARM's contracting officer orally allowed the vendor to transfer only 30 days' worth of email. Even though the vendor did not perform the work agreed to in the contract, the contracting officer did not issue a cure notice<sup>8</sup> or seek to renegotiate the price of the contract with an equitable reduction in price.

In addition to paying the vendor full price for agreed-to services not performed as specified in the contract, the EPA is incurring additional costs for maintaining

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<sup>5</sup> OMB Circular A-94 Revised Section 6 subsection a.

<sup>6</sup> OMB Circular A-94 Revised Section 5 subsection c.3.

<sup>7</sup> OMB Circular A-94 Revised Section 4 subsection b.2.

<sup>8</sup> A cure notice notifies a vendor that it is in default of a contract. Cure notices specify failures and suggested cures.

emails not migrated to the cloud. OEI indicated the cost of maintaining the old email was low, but was unable to provide the Office of Inspector General (OIG) with the annual cost. Additionally, OEI is planning to incur the annual cost of providing employees with access to the email that was not moved off of the legacy email platform until at least FY 2019.

The FAR specifies that:

- Contracting officers are responsible for ensuring performance of all necessary actions for effective contracting, ensuring compliance with the terms of the contract and safeguarding the interests of the United States.<sup>9</sup>
- If repair/replacement or re-performance will not correct the defects or is not possible, the government may seek an equitable price reduction or adequate consideration for acceptance of nonconforming supplies or services.<sup>10</sup>
- If the termination is predicated on the contractor failing to perform some of the other provisions of the contract (such as not furnishing a required performance bond) or so fails to make progress as to endanger performance of the contract, the contracting officer shall give the contractor written notice specifying the failure and providing a period of 10 days (or longer period as necessary) in which to cure the failure. Upon expiration of the 10 days (or longer), the contracting officer may issue a notice of termination for default unless it is determined that the failure to perform has been cured.<sup>11</sup>

OARM's contracting officer indicated that OEI did not request the negotiation of a lower price. As a result, the EPA paid full price for agreed-to services that were not performed as specified in the contract. In addition, the EPA has to incur additional costs of maintaining all email not transferred to the cloud on in-house systems until at least FY 2019. OEI was unable to provide the OIG with the cost of storing and providing access to the historic email that was not moved to the cloud.

## Conclusions

It is questionable whether the agency will realize its projected cost savings because the EPA did not perform a documented cost-benefit analysis in compliance with OMB guidance. Additionally, the EPA paid for services not received and incurred additional expenses without a written modification to the contract and without seeking an equitable reduction in price.

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<sup>9</sup> 48 CFR subsection 1.602-2.

<sup>10</sup> 48 CFR subsection 52.212-4 (a).

<sup>11</sup> 48 CFR subsection 49.402-3 (d).

## Recommendations

We recommend that the Assistant Administrator for Environmental Information:

1. Develop and implement an internal independent oversight process to ensure that documented cost-benefit analyses are performed in compliance with the proper OMB circular prior to OEI outsourcing IT initiatives.

We recommend that the Assistant Administrator for Administration and Resources Management:

2. Develop and conduct training and provide oversight to help ensure contracting officers:
  - a. Issue cure notices when they become aware that a vendor will not meet its contractual obligations.
  - b. Negotiate equitable price reductions when vendors are not able to fulfill their contractual obligations.
  - c. Add written amendments to contracts for all contract modifications.

## Agency Response to Draft Report and OIG Evaluation

We received responses to the draft report from the OEI and OARM. Based on the OEI and OARM responses, we made changes as needed. Appendix A contains the OEI responses and appendix B contains the OARM responses, along with our comments.

OEI did not concur with recommendation 1 and offered an alternative recommendation. We did not accept the proposed alternative recommendation. OEI did not provide sufficient information to allow us to determine whether its intended action would satisfy the intent of our recommendation. However, based on discussions with the agency, we modified the recommendation to more clearly describe our intent. This recommendation is considered unresolved.

In the draft report, we made a recommendation that OARM determine the difference in cost between not moving all email to the cloud within the agreed-to time frames, as specified in the contract, and just moving 30 days of email, and seek an equitable reduction in price. We evaluated OARM's comments and removed this recommendation because OARM indicated in its response to the draft report that it had issued a written modification for the change in scope subsequent to the OIG informing the Office of Acquisition Management that the contracting officer failed to obtain a written modification specifying that the contractor only move 30 days of email. This written modification was issued within a month after the OIG notified the Office of Acquisition Management that the contracting officer failed to obtain the written modification for the change in scope—almost 7 months after the oral agreement was reached, and almost 5 months after the orally agreed-to change in scope was executed. We confirmed that the

agency took the stated actions. However, we were unable to verify that this modification would achieve the desired results due to the time constraints of the audit.

OARM concurred with the remaining recommendation OARM in this chapter (recommendation 2). This recommendation is resolved and OARM indicated in its response to the draft report that it has taken actions to address the recommendation. However, due to time constraints, we were not able to validate that the actions achieved the desired results.

# Chapter 3

## Improvements Needed in Infrastructure-as-a-Service Cloud Implementation

The EPA entered into and approved payments for an Infrastructure-as-a-Service (IaaS) contract that the EPA was not able to utilize for hosting applications because it did not meet federal requirements.<sup>12</sup> Additionally, OEI has not performed documented analyses to determine whether the EPA should continue with this IaaS contract and/or upgrade its internal infrastructure to meet all of the NIST essential characteristics of cloud computing. The OMB and FAR establish requirements when contracting for IT services such as cloud services. OEI and OARM's Office of Acquisition Management did not follow or were unaware of specific requirements that impacted contracts associated with the EPA's cloud initiatives. As a result, there is no documentation to support whether it is in the EPA's best interest to continue with the IaaS contract and/or upgrade its internal infrastructure to meet all of the NIST essential characteristics of cloud computing.

### IaaS Cloud Contract Could Not Be Utilized to Host Applications

The EPA entered into a contract with a GSA-approved external cloud provider for IaaS cloud computing services that could not be utilized to host applications because the vendor's cloud service did not meet the federal Trusted Internet Connections (TIC) and Internet Protocol version 6 (IPv6) requirements.<sup>13</sup> Furthermore, the EPA's information security procedures did not meet federal TIC requirements.<sup>14</sup> Specifically, the procedure states that all remote access for moderate and high information systems be routed through a limited number of managed access control points and refers to OMB memorandums on the TIC. The EPA's information security procedures contradict the TIC Reference Architecture Document version 2, which specifies that all external connections are secured through a TIC access point.<sup>15</sup> The objectives of the TIC initiative are to optimize and standardize the security of individual external network connections currently in use by federal agencies, including connections to the Internet; and to improve the federal government's security posture and incident response capability

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<sup>12</sup> IaaS is a cloud infrastructure where the consumer is provided the capability to provision processing, storage, networks and other fundamental computing resources where the consumer is able to deploy and run arbitrary software, which can include operating systems and applications. The consumer does not manage or control the underlying cloud infrastructure but has control over operating systems, storage and deployed applications; and possibly limited control of select networking components (e.g., host firewalls).

<sup>13</sup> An Internet Protocol address is a unique number used to identify computers on a network. Internet Protocol version 4, which had a limited number of Internet Protocol addresses, has become depleted. IPv6 was developed to establish more levels of addressing hierarchy with a larger pool of Internet Protocol addresses.

<sup>14</sup> Information Security-Interim Access Control Procedures V3.2 (CIO-2150.3-P-01.1).

<sup>15</sup> The Department of Homeland Security's Trusted Internet Connections (TIC) Reference Architecture Document Version 2.0 (September 1, 2011).

through the reduction and consolidation of external connections and by providing enhanced monitoring and situational awareness of external network connections. The OIG concludes that entering into contracts and having procedures that do not comply with the TIC requirements puts the EPA at risk of not realizing the objectives of the initiative.

OMB Memorandum M-05-22 originally set June 2008 as the date by which all agencies' infrastructures must use IPv6. Additionally, OMB Memorandum for Chief Information Officers of Executive Departments and Agencies: *Transition to IPv6*, dated September 28, 2010:

- Extended the due date to the end of FY 2012 for public-facing servers and the end of FY 2014 for internal client applications that communicate with public Internet servers and supporting enterprise networks.
- Specified that all agencies ensure that agency procurements of networked IT comply with FAR requirements for use of the USGv6 Profile and Test Program for the completeness and quality of their IPv6 capabilities.<sup>16</sup>

Furthermore, the FAR states that a waiver is required from the agency's CIO when acquiring information technology that does not comply with IPv6.<sup>17</sup>

OEI representatives indicated that they were aware of and included the TIC requirement in their original Request for Quote package. However, based on questions received from the vendor community, OEI believed that there were no known solutions to enable TIC provisioning by the provider. OEI explained that it made the choice to remove the TIC requirement because OEI believed that the TIC Reference Architecture provided for the hosting of unrestricted access services without a TIC. OEI indicated that, subsequent to the award, the EPA's CIO issued the Environmental Protection Agency Information Security Policy (CIO-2150.3) and associated procedures. OEI also indicated that the EPA's Senior Agency Information Security Officer stated that these procedures require that all the EPA services—including unrestricted access services—must be accessed through the TIC. Although the EPA indicated it was properly advised, the Environmental Protection Agency Information Security Policy only indicates that all remote access for moderate and high information systems and not all external connections, as required by OMB, must be routed through a limited number of managed access control points.

OEI indicated that it requested IPv6 capability in the Performance Work Statement within the original Request for Quote package. However, OEI stated that the vendor indicated that it could not support IPv6 because the vendor had not implemented IPv6 across its external cloud services but that the vendor

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<sup>16</sup> USGv6 is the name provided by NIST to the development of the technical infrastructure necessary to support wide-scale adoption of IPv6 in the U.S. government.

<sup>17</sup> 48 CFR subsection 11.002(g).

committed to providing an IPv6-compliant release by the end of 2013. In addition, the contracting officer was unaware that a waiver needed to be issued by the CIO prior to entering into contracts that did not meet the requirements for use of the USGv6 Profile and Test Program for the completeness and quality of their IPv6 capabilities. The Office of Acquisition Management indicated that better training could have made the contracting officer aware of the FAR's IPv6 requirements and oversight may have detected the error.

The EPA incurred costs on the contract that could not be utilized for hosting applications until a solution for TIC and IPv6 requirements were met. We obtained all the invoices for the vendor's cloud environment. As of March 2014, the EPA incurred approved invoices associated with this contract totaling \$74,241 from July 6, 2012, to March 29, 2013. OEI indicated that the vendor's cloud environment has been made to be IPv6 compliant and that traffic has been routed through the EPA TIC; additionally, OEI has indicated that its Office of Information Collection placed an application into production in the vendor's cloud environment in March 2014. OEI indicated that there has been no activity on the IaaS Cloud contract since last year, that the system was only placed in production in March 2014, and that no invoice has yet been submitted for payment for this activity by the vendor.

## **Analysis for Continued Use of IaaS Needs to Be Performed**

OEI did not perform an analysis to determine whether it should continue with the IaaS contract or use the resources for the external IaaS cloud environment on other initiatives. Additionally, OEI has not performed an analysis for turning its internal hosting into an internal private cloud that meets all of the NIST essential characteristics of cloud computing.

On June 25, 2012, the EPA entered into a contract with a GSA-approved external cloud provider for IaaS cloud computing services without performing a cost-benefit analysis. Instead, OEI indicated that it pursued an indefinite delivery/indefinite quantity contract to minimize its risk and cost exposure while providing an opportunity to explore external cloud service options for the EPA. OEI representatives indicated that the EPA wanted to provide its customers with an external cloud option to supplement the EPA's internal hosting services, which OEI referred to as a private cloud. The EPA renewed the contract for a second year.

OEI indicated that to use the external cloud service offering, the application owners would have to incur additional costs for OEI to develop services not offered by the cloud provider and/or pay additional costs for premium services offered by the cloud provider. OEI indicated that the costs of these services are already included in the cost for hosting applications using the EPA's internal hosting services. On April 25, 2013 (10 months into the contract which OEI renewed), an OEI representative indicated that they:

- Now have a “pretty” clear understanding of the integration requirements, obstacles and/or gaps in capabilities associated with using the vendor’s cloud offering.
- Believed that given the additional costs necessary to address the gaps in the vendor’s cloud offering, the cost of the vendor’s cloud services would likely be equal to or greater than the cost to use the EPA’s National Computer Center internal services.

OEI also indicated that the EPA’s internal hosting environment did not meet all of the essential characteristics of cloud computing as defined by NIST. OEI did not perform a documented analysis to determine whether it would be in the EPA’s best interest to:

- Convert the internal infrastructure to meet all of the NIST essential characteristics of cloud computing.
- Continue operating as is without meeting the “on-demand self-service” NIST characteristic of cloud computing.

OMB Circular A-130 Revised indicates that agencies will integrate planning for information systems with plans for resource allocation and use, including budgeting, acquisition and use of information technology.<sup>18</sup>

**Reason for not performing a cost-benefit analysis for using an external vendor’s cloud services:** OEI indicated that it did not do a cost-benefit analysis associated with the vendor’s contract for external cloud services because, when pursuing the contract, OEI understood that the federal cloud services landscape was relatively immature and evolving. Instead, OEI indicated that it pursued an indefinite delivery/indefinite quantity contract to minimize its risk and cost exposure while providing an opportunity to explore external cloud service options for the EPA.

**Reason for not performing cost-benefit analysis to convert its internal infrastructure services to meet all of the NIST essential characteristics of cloud computing:** OEI indicated that it believed, based on its experience, that:

- Establishing self-service tools for the NCC private cloud services would require a substantial investment that would not be cost effective for its limited market.
- The integration of self-service IT resource allocation with Federal Information Security Management Act authorization and financial accountability would require a complex customization and ongoing maintenance in addition to a commercial off-the-shelf tool investment.

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<sup>18</sup> OMB Circular A-130 Revised Section 8 Subsection a.(e).

- There has been a low volume of requests for new servers and/or changes to resource allocations and OEI believed that making an investment in large-scale self service was not practical.

By not performing these analyses, the EPA does not know whether it would be more beneficial to:

- Continue with the IaaS contract (including the investments the EPA would have to make to address the integration requirements, obstacles and gaps identified) or use the resources for the external IaaS cloud environment on other initiatives.
- Continue using the internal hosting services as-is or upgrade them to meet all the NIST characteristics of the cloud computing environment

## Conclusions

The EPA entered into contracts for cloud computing services without being aware of or following specific federal requirements. As a result, the EPA entered into and paid for a contract that the EPA was not able to utilize for hosting applications until 21 months after the contract was signed.

## Recommendations

We recommend that the Assistant Administrator for Environmental Information:

3. Perform a formal documented analysis to determine whether it is in the EPA's best interest to continue with the IaaS contract or free the financial resources (including the investments the EPA would have to make to address integration requirements, obstacles and gaps identified) for other uses.
4. Prior to entering into any future IaaS contracts, perform a formal documented analysis to determine whether such contracts are in the EPA's best interest that includes the investments the EPA would have to make to address integration requirements, obstacles and gaps identified as a result of the current IaaS contract.
5. Modify the Information Security-Interim Access Control Procedures to adhere to the TIC Reference Architecture Document, which specifies that all external connections are secured through a TIC access point.
6. Perform a formal documented analysis to determine whether it is in the EPA's best interest to continue using the internal hosting services as-is or

to upgrade them to establish an internal private cloud that meets all characteristics of the NIST definition of a cloud.

We recommend that the Assistant Administrator for Administration and Resources Management:

7. Establish guidance, formal oversight processes and training to ensure that the requirements for use of the USGv6 Profile and Test Program for the completeness and quality of their IPv6 capabilities are met within all applicable IT contracts or that a waiver is obtained from the EPA's CIO prior to issuing an applicable IT contract that does not meet the requirements, as required by the FAR.

## **Agency Response to Draft Report and OIG Evaluation**

We received responses to the draft report from the OEI and OARM and made changes as needed. Appendix A contains the OEI responses and appendix B contains the OARM responses, along with our comments.

OEI concurred with the recommendations in this chapter. However, OEI did not provide sufficient information to allow us to determine whether its intended actions would satisfy the intent of our recommendations, and we consider those recommendations unresolved.

OARM concurred with recommendation 7. This recommendation is resolved and OARM indicated in its response to the draft report that it has taken actions to address the recommendation. However, due to the time constraints of the audit, we did not verify that the actions effectively corrected the deficiency.

## Chapter 4

### OEI Did Not Evaluate Whether Applications Could Be Retired, Consolidated and Moved to the Cloud

The EPA did not fully develop or implement a strategy to evaluate the EPA's entire portfolio of IT applications to determine which applications can be consolidated, retired or moved to the cloud. The Federal Cloud Computing Strategy indicates that successful organizations carefully consider their broad IT portfolios and create roadmaps for cloud deployment and migration. OMB Memorandum M-11-29 states that agency CIOs must focus on eliminating duplication and rationalize their agency's IT investments.<sup>19</sup> OEI representatives indicated that they believed the responsibility for managing the assets in the agency's IT portfolio belonged to the agency's program and regional offices and not OEI. The EPA may not realize efficiencies that could be obtained by developing and implementing a strategy to evaluate the EPA's entire portfolio of IT applications to determine which applications can be consolidated, retired or moved to the cloud.

#### OEI Did Not Evaluate Applications for Retirement, Consolidation and Cloud Migration

The EPA had not fully developed a strategy to evaluate applications for consolidating similar assets; retiring assets that have reached their end of life; and utilizing the cloud whenever a secure, reliable and cost-effective cloud option exists. The OEI indicated that:

- The platform, used to support internal email, would not go away before FY 2019. Furthermore, OEI indicated that the platform that supported internal email also supported numerous agency-developed and commercial applications. OEI's plan focused only on moving the email component.
- OEI performed an analysis that determined that moving email to the cloud would not negatively impact the applications that remained on the platform also used for internal email.
- OEI did not have or implement a strategy to identify which applications can be consolidated, retired or moved to the cloud or another platform for the more than 6,000 active applications that remained on the platform used for internal email.

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<sup>19</sup> OMB Memorandum M-11-29 Point 2 Commodity IT.

Creating roadmaps for cloud deployment and migration provides the EPA the opportunity to focus on eliminating duplicate IT investments as required by OMB Memorandum M-11-29.

The EPA's CIO and OEI have the responsibility to manage the EPA's IT portfolio, but OEI representatives indicated that OEI does not manage the IT portfolio for the agency. OEI representatives indicated that OEI supports the Capital Planning and Investment Control, System Life Cycle Management, and Enterprise Architecture processes that support investment owners in considering cloud options. The U.S. Clinger-Cohen Act specifies that agencies' CIOs are responsible for promoting the effective and efficient design and operation of all major information resources management processes for the executive agency.<sup>20</sup> OMB Memorandum M-11-29 adds additional responsibilities to the CIO, including the responsibility over the entire IT portfolio for an agency, to the statutory responsibilities provided through the Clinger-Cohen Act. The EPA's 1200 Delegations Manual provides for the delegation of CIO responsibilities, including the responsibilities assigned to the CIO within the Clinger-Cohen Act. The manual did not specifically list instructions for the delegation of promoting the effective and efficient design and operation of all the agency's major information resources or the CIO's responsibility over the entire IT portfolio. The manual did indicate that the CIO's responsibilities not specifically listed in the manual may be delegated to OEI's office directors, who may only redelegate these authorities to the division director level or equivalent.

By not evaluating the IT portfolio and creating roadmaps, the EPA may not realize efficiencies that could be obtained by moving to the cloud, consolidating similar assets, and retiring assets that have reached their end of life. These applications may have owners in different program offices. As a result, if not managed centrally, there is an increased possibility that multiple systems performing similar functions would not be consolidated. This may result in the EPA missing the opportunity to reduce redundant costs. This analysis and associated roadmaps should not be limited to the applications remaining on the platform that supported internal email, but should be extended to the EPA's entire IT portfolio.

## Conclusions

The OMB Memorandum M-11-29 and Federal Cloud Computing Strategy provide guidance for consolidating IT assets and developing cloud roadmaps. By not centrally managing the EPA's entire IT portfolio as a whole, the EPA could be missing the opportunity to reduce redundant costs.

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<sup>20</sup> 40 U.S. Code Subtitle III subsection 11315(b)(3).

## Recommendations

We recommend that the Assistant Administrator for Environmental Information:

8. Develop and implement a strategy to perform a documented analysis of the applications remaining on the platform that supported the EPA's internal email to determine which applications should be consolidated, retired and/or moved to the cloud or another platform.
9. Develop and implement a strategy to perform a documented analysis of all of the EPA's applications to determine which applications should be consolidated, retired and/or moved to the cloud.
10. Create and follow a formal process to implement the consolidation, retirement and/or cloud migration of applications as identified in response to recommendations 8 and 9.

## Agency Response to Draft Report and OIG Evaluation

We received a response to the draft report from the OEI and made changes as needed. Appendix A contains the OEI response along with our comments.

OEI did not concur with the recommendations in this chapter and offered alternate recommendations. We did not accept the proposed alternative recommendations. OEI did not provide sufficient information to allow us to determine whether its intended actions would satisfy the intent of our recommendations. Therefore, these recommendations are considered unresolved.

# Chapter 5

## Improvements Needed in Documented Processes for Cloud Implementation

The EPA's policies and procedures for moving to the cloud are incomplete and need improvement. OMB Circular A-123, *Management's Responsibility for Internal Control*, specifies that management is responsible for developing and implementing effective internal controls, including policies and procedures.<sup>21</sup> Although OEI recognized the need for these additional policies and procedures, it was not made a priority, resulting in OEI indicating during a briefing with the OIG that the additional policies and procedures were no longer needed. Without fully developed and implemented formal policies and procedures, EPA management does not have reasonable assurance that the agency's migration to the cloud will be effective, efficient, and in compliance with applicable laws and regulations.

### Cloud Computing Policies and Procedures Need Improvement

The EPA's policies and procedures for cloud computing are incomplete and need improvement. The policies and procedures did not include guidance that should be included based on the 25 Point Implementation Plan to Reform Federal IT and Federal Cloud Computing Strategy. For example, the policies and procedures did not provide detailed instructions for application owners to use for:

- Assessing and classifying applications in the EPA's IT portfolio for moving to the cloud
- Creating roadmaps for cloud deployment and migration.
- Evaluating whether a secure, reliable and cost-effective cloud option exists for all new applications and, if so, ensuring that a cloud-based solution is used.

The EPA has the following guidance documents which address cloud migration:

- Assistant Administrator and CIO Memorandum (January 2011) addressing the White House's 25-Point Implementation Plan to Reform Federal Information Technology Management.
- Assistant Administrator and CIO Memorandum (September 2011) regarding Cloud Computing Services Security Requirements.
- System Life Cycle Management Policy and Procedure (September 2012).
- EPA Enterprise Roadmap 2012.

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<sup>21</sup> OMB Circular A-123 Sections I and IIC.

Notwithstanding these documents, OEI recognized the need for additional policies and procedures associated with cloud computing. In OEI's Quality Technology Subcommittee Briefing: *EPA Cloud Computing Strategy Update*, presented on July 21, 2011, OEI identified to EPA management the need to:

- Develop readiness assessment criteria for applications to migrate to the cloud.
- Assess all the EPA applications and develop a migration schedule for migrating to the cloud.

In addition, as of May 2013, OEI also listed the development of a cloud policy as a medium priority on its policy agenda. This agenda indicated the description of this cloud policy was to cover the requirements for the EPA offices that wanted to use cloud-based solutions. In November 2013, OEI stated that the cloud policy on the agenda was no longer needed. While OEI believes this policy to no longer be necessary, management had not taken steps to include these improvements to the cloud policies and procedures previously listed or develop additional cloud policies and procedures.

The Federal Cloud Computing Strategy and the 25 Point Implementation Plan to Reform Federal IT provide guidance for assessing if and when applications can be moved to the cloud based on readiness and value. For example, the strategy indicates that agencies should carefully consider their broad IT portfolios and create roadmaps for cloud deployment and migration. Additionally, the 25 Point Implementation Plan to Reform Federal IT requires that agencies default to cloud-based solutions for new IT deployments whenever a secure, reliable, cost-effective cloud option exists.

## Conclusions

The responsibility for developing internal controls, including policies and procedures, falls upon management. EPA management did not fulfill its responsibility when it did not develop complete policies and procedures for moving to the cloud. Improvements in documented processes for cloud implementation can minimize the waste of money and resources and help ensure that the EPA's migration to the cloud adheres to IT laws and regulations. Without fully developed formal policies and procedures for migrating to the cloud, EPA management does not have reasonable assurance that the agency's migration will be effective, efficient, and in compliance with applicable laws and regulations.

## **Recommendation**

We recommend that the Assistant Administrator for Environmental Information:

11. Publish detailed instructions for agency programs to use when considering moving applications to the cloud that fully addresses federal guidance, including but not limited to such areas as:
  - a. Assessing and classifying applications for cloud migration.
  - b. Creating cloud migration roadmaps.
  - c. Performing a documented analysis to determine whether a secure, reliable and cost-effective cloud option exists for all new applications.

## **Agency Response to Draft Report and OIG Evaluation**

OEI concurred with recommendation 11. However, OEI did not provide sufficient information to allow us to determine whether its intended actions would satisfy the intent of our recommendation. Therefore, the recommendation is considered unresolved.

# **Status of Recommendations and Potential Monetary Benefits**

RECOMMENDATIONS						POTENTIAL MONETARY BENEFITS (in \$000s)	
Rec. No.	Page No.	Subject	Status <sup>1</sup>	Action Official	Planned Completion Date	Claimed Amount	Agreed-To Amount
1	8	Develop and implement an internal independent oversight process to ensure that documented cost-benefit analyses are performed in compliance with the proper OMB circular prior to OEI outsourcing IT initiatives.	U	Assistant Administrator for Environmental Information			
2	8	Develop and conduct training and provide oversight to help ensure contracting officers: <ul style="list-style-type: none"> <li>a. Issue cure notices when they become aware that a vendor will not meet its contractual obligations.</li> <li>b. Negotiate equitable price reductions when vendors are not able to fulfill their contractual obligations.</li> <li>c. Add written amendments to contracts for all contract modifications.</li> </ul>	C	Assistant Administrator for Administration and Resources Management	12/19/13		
3	14	Perform a formal documented analysis to determine whether it is in the EPA's best interest to continue with the laaS contract or free the financial resources (including the investments the EPA would have to make to address integration requirements, obstacles and gaps identified) for other uses.	U	Assistant Administrator for Environmental Information			
4	14	Prior to entering into any future laaS contracts, perform a formal documented analysis to determine whether such contracts are in the EPA's best interest that includes the investments the EPA would have to make to address integration requirements, obstacles and gaps identified as a result of the current laaS contract.	U	Assistant Administrator for Environmental Information			
5	14	Modify the Information Security-Interim Access Control Procedures to adhere to the TIC Reference Architecture Document, which specifies that all external connections are secured through a TIC access point.	U	Assistant Administrator for Environmental Information			
6	14	Perform a formal documented analysis to determine whether it is in the EPA's best interest to continue using the internal hosting services as-is or to upgrade them to establish an internal private cloud that meets all characteristics of the NIST definition of a cloud.	U	Assistant Administrator for Environmental Information			
7	15	Establish guidance, formal oversight processes and training to ensure that the requirements for use of the USGv6 Profile and Test Program for the completeness and quality of their IPv6 capabilities are met within all applicable IT contracts or that a waiver is obtained from the EPA's CIO prior to issuing an applicable IT contract that does not meet the requirements, as required by the FAR.	C	Assistant Administrator for Administration and Resources Management	10/14/13		

RECOMMENDATIONS						POTENTIAL MONETARY BENEFITS (in \$000s)	
Rec. No.	Page No.	Subject	Status <sup>1</sup>	Action Official	Planned Completion Date	Claimed Amount	Agreed-To Amount
8	18	Develop and implement a strategy to perform a documented analysis of the applications remaining on the platform that supported the EPA's internal email to determine which applications should be consolidated, retired and/or moved to the cloud or another platform.	U	Assistant Administrator for Environmental Information			
9	18	Develop and implement a strategy to perform a documented analysis of all of the EPA's applications to determine which applications should be consolidated, retired and/or moved to the cloud.	U	Assistant Administrator for Environmental Information			
10	18	Create and follow a formal process to implement the consolidation, retirement and/or cloud migration of applications as identified in response to recommendations 8 and 9.	U	Assistant Administrator for Environmental Information			
11	21	Publish detailed instructions for agency programs to use when considering moving applications to the cloud that fully addresses federal guidance, including but not limited to such areas as: <ul style="list-style-type: none"> <li>a. Assessing and classifying applications for cloud migration.</li> <li>b. Creating cloud migration roadmaps.</li> <li>c. Performing a documented analysis to determine whether a secure, reliable and cost-effective cloud option exists for all new applications.</li> </ul>	U	Assistant Administrator for Environmental Information			

<sup>1</sup> O = Recommendation is open with agreed-to corrective actions pending.  
C = Recommendation is closed with all agreed-to actions completed.  
U = Recommendation is unresolved with resolution efforts in progress.

***OEI Response to Draft Report and OIG Comment***  
***(June 4, 2014)***

**MEMORANDUM**

**SUBJECT:** Response to Office of Inspector General Draft Report No. OA-FY13-0095, “Cloud Oversight Results in Unsubstantiated and Missed Opportunities for Savings, Unused and Undelivered Services, and Incomplete Policies,” dated April 30, 2014

**FROM:** Renee P. Wynn /s/  
Acting Assistant Administrator and Chief Information Officer

**TO:** Arthur A. Elkins, Jr.  
Inspector General

Thank you for the opportunity to respond to the issues and recommendations in the subject draft audit report. Following is a summary of the Office of Environmental Information’s (OEI) overall position, along with its position on each of the draft report recommendations. For those draft report recommendations with which the OEI agrees, we have provided high-level intended corrective actions and estimated completion dates to the extent we can. For those report recommendations with which the OEI does not agree, we have explained our position and proposed alternatives to recommendations to the extent we can.

**OEI’s Overall Position**

The OEI recommends the title of the report be revised and believes some of the content of the report goes beyond the scope of the audit. The OEI concurs on five of the nine OEI recommendations. The OEI disagrees with four of the nine OEI recommendations. Please note that the Office of Administration and Resources Management provided their separate response to the Office of Inspector General.

Attached is OEI’s corrective action plan with additional details. If you have any questions or concerns about this response, please feel free to contact Harrell Watkins, Acting Director, Office of Technology Operations and Planning, at 202-566-0672.

Attachment

**OFFICE OF ENVIRONMENTAL INFORMATION (OEI)  
RESPONSE TO REPORT RECOMMENDATIONS  
CORRECTIVE ACTION PLAN**

OIG Draft Report No. OA-FY13-0095, “Cloud Oversight Results in Unsubstantiated and Missed Opportunities for Savings, Unused and Undelivered Services, and Incomplete Policies,” dated April 30, 2014.

Note: The Office of Administration and Resources Management has the lead to respond to OIG recommendations 2, 3, and 8 which is being provided separately to OIG.

**AGREEMENTS**

**OIG Recommendation 4 (Lead Office: OEI/OTOP/NCC)**

Perform a formal documented analysis to determine whether it is in the EPA’s best interest to continue with the IaaS contract or free the financial resources (including the investments the EPA would have to make to address integration requirements, obstacles and gaps identified) for other uses.

Corrective Action:

OEI Concur on the Recommendation – OEI will perform a documented analysis on whether it is in the EPA’s best interest to continue with the IaaS contract.

Estimated Completion Date: 9/30/2014

**OIG Comment:** OEI indicated that it concurs with the recommendation, but its response did not provide sufficient information to allow us to determine whether its intended actions would satisfy the intent of our recommendation.

***Discussion of OIG Findings:***

***Chapter 3: Improvements needed in Infrastructure-as-a-Service Cloud Implementation***

OEI does not agree with the conclusion reached in Chapter 3 that OEI was and is unable to use the contract for IaaS Cloud Services. OEI did use the contract for IaaS services and paid only for the services it used.

Federal cloud computing was, and continues to be, an emerging and rapidly changing technology area. Likewise federal regulations and guidance governing information systems operations, security and procurement were and are evolving and changing to adapt to the cloud computing context. The combination of changing technology, regulations and guidance produce an implementation context of high uncertainty.

Given the context of uncertainty, OEI’s approach was prudent and productive. OEI pursued a contracting method (indefinite delivery with indefinite quantity) that allowed EPA to test and evaluate the provider’s IaaS cloud technologies and services at a reasonable cost while providing for expansion if or when it was needed. With this contract EPA pays only for the resources consumed with a \$50,000 annual minimum. This methodology mitigated both costs and risks associated with exploring the emerging technology.

It is a recognized industry best practice to test and evaluate complex technologies prior to broad scale adoption. As noted in the audit, OEI consumed \$74, 241 in services or \$24,241 over the minimum annual amount. These costs incurred were reasonable costs for services consumed given the scope and

complexity of the technology involved. OEI received tangible benefit from the hands-on experience gained by testing the technologies, methods and procedures used for deploying and operating systems within specific context of the provider's IaaS cloud solution. Finally, as noted in the audit, the service provider mitigated the IPv6 deficiency within the time period provided by the contract and EPA is now hosting a production application using the services.

**OIG Recommendation 5 (Lead Office: OEI/OTOP/NCC)**

Prior to entering into any future IaaS contracts, perform a formal documented analysis to determine whether such contracts are in the EPA's best interest. That includes the investments the EPA would have to make to address integration requirements, obstacles and gaps identified as a result of the current IaaS contract.

Corrective Action:

OEI Concurrs on the Recommendation – OEI will perform a formal analysis to determine whether such contracts are in the EPA's best interest prior to entering into any future IaaS contract.

Estimated Completion Date: TBD

**OIG Comment:** OEI indicated that it concurs with the recommendation, but its response did not provide sufficient information to allow us to determine whether its intended actions would satisfy the intent of our recommendation.

**OIG Recommendation 6 (Lead Office: OEI/SAISO)**

Modify the Information Security-Interim Access Control Procedures to adhere to the TIC Reference Architecture Document, which specifies that all external connections are secured through a TIC access point.

Corrective Action:

OEI Concurrs on the Recommendation – The SAISO is in the process of updating the interim control procedures to reflect NIST SP800-53 rev 4, and will ensure the AC procedure includes appropriate reference guidance from the Department of Homeland Security's Trusted Internet Connections (TIC) Reference Architecture Document Version 2.0 (October 1, 2013).

Estimated Completion Date: 12/31/2014

**OIG Comment:** OEI indicated that it concurs with the recommendation, but its response did not provide sufficient information to allow us to determine whether its intended actions would satisfy the intent of our recommendation.

**OIG Recommendation 7 (Lead Office: OEI/OTOP/NCC)**

Perform a documented analysis to determine whether it is in the EPA's best interest to continue using the internal hosting services as-is or to upgrade them to establish an internal private cloud that meets all characteristics of the NIST definition of a cloud.

Corrective Action:

OEI concurs on the Recommendation – OEI will perform an analysis to determine whether it is in the EPA's best interest to continue using the internal hosting as-is or to upgrade to an internal private cloud.

Estimated Completion Date: 9/30/2014

**OIG Comment:** OEI indicated that it concurs with the recommendation, but its response did not provide sufficient information to allow us to determine whether its intended actions would satisfy the intent of our recommendation.

**OIG Recommendation 12 (Lead Office: OEI/OTOP/MISD)**

Publish detailed instructions for agency programs to use when considering moving applications to the cloud that fully addresses federal guidance, including but not limited to such areas as:

- a. Assessing and classifying applications for cloud migration.
- b. Creating cloud migration roadmaps.
- c. Performing a documented analysis to determine whether a secure, reliable and cost-effective cloud option exists for all new applications.

**Corrective Action:**

OEI concurs that some specific guidance for helping assess whether migrating to the cloud is a viable option could be helpful to program managers. However, we would note that such guidance should be based not only on Federal policy, but on our own lessons learned. Thus we would put more emphasis on sub-items a and c, which focus on evaluating options, than on item b, which seems to indicate a preference for cloud migration. Our completion date will be contingent upon the evaluation of our lessons learned, which will continue through the SharePoint deployment set to launch in early summer. We also request clarification on whether the term “applications” under item c refers to applications as we have defined them in this document.

Estimated Completion Date: 5/29/2015

**OIG Comment:** OEI indicated that it concurs with the recommendation, but its response did not provide sufficient information to allow us to determine whether its intended actions would satisfy the intent of our recommendation. In contrast to OEI’s definition of an application as being a generic term that refers to stand-alone software systems, NIST SP 800-37 revision 1 defines an application as a software program hosted by an information system.

***Discussion of OIG Findings:***

***Chapter 5: Improvements Needed in Documented Process for Cloud Implementation***

As noted in the comments to Chapter 4, it is not appropriate draft findings or to make recommendations concerning “applications in the EPA’s IT Portfolio.” Applications and the IT portfolio are different items, with different lifecycles and governance. Any guidance that OEI develops for cloud migration would likely have to provide tailoring differences for evaluating applications versus evaluating Capital Planning and Investment Control (CPIC) investments.

## **DISAGREEMENTS**

### **Report Title**

OEI respectfully requests the OIG change the title of this report to more accurately reflect the purpose and nature of the findings of this audit. A suggested title is “Improvements Needed in Implementing Cloud Initiatives.”

### ***Discussion of OIG Findings:***

***Chapter 4: OEI Did Not Evaluate Whether Applications Could Be Retired, Consolidated and Moved to the Cloud***

### ***Chapter 5: Improvements Needed in Documented Processes for Cloud Implementation***

The OIG’s stated purpose for this audit was to determine whether EPA had 1) implemented its cloud initiatives in accordance with the Federal Cloud Computing Strategy and 2) developed formal processes to monitor cloud vendors. However, the OIG went on to include others in its report and recommendations area not associated with its stated purpose, see Chapter 4 “OEI Did Not Evaluate Whether Applications Could Be Retired, Consolidated and Moved to the Cloud” and Chapter 5 “Improvements Needed in Documented Processes for Cloud Implementation.” Chapter 4 discusses EPA’s overall information portfolio which in many cases was untouched by the move from Lotus Notes to a suite of Microsoft tools, including email. Chapter 5 focuses on EPA’s policies and procedures for moving to the cloud. The addition of this chapter was not covered by the purpose of the audit and should not be included in this report.

**OIG Comment:** The Federal Cloud Computing Strategy indicates that cloud computing has the potential to address inefficiencies that negatively impact the federal government’s ability to serve the American public. These inefficiencies include: low asset utilization, a fragmented demand for resources, duplicative systems, environments which are difficult to manage, and long procurement lead times. We conclude this to mean that the management of IT investments to eliminate these inefficiencies is a part of the Federal Cloud Computing Strategy.

We conclude that the policies and procedures addressed in chapter 5 are essential for following federal cloud computing strategy. OMB Circular A-123 indicates that internal control activities such as policies and procedures help ensure that agency objectives, such as effectiveness and efficiency of operations and compliance with applicable laws and regulations, are met.

### **OIG Recommendation 1 (Lead Office: OEI/OTOP/MISD)**

Develop and implement an internal independent oversight process to ensure that a justification for the use of either OMB Circular A-94 Revised or OMB Circular A-76 Revised is documented and that documented cost-benefit analyses are performed in compliance with the proper OMB circular prior to OEI outsourcing IT initiatives.

### **Explanation for Disagreement:**

Following are the reasons OEI does not concur with this recommendation:

1. OMB Circular A-76 is not relevant to “outsourcing IT initiatives.” The purpose of OMB Circular A-76 is to assess whether work performed by government staff is inherently governmental or whether it could be provided by the private sector. There is little to be gained by evaluating whether to conduct an A-76 analysis.

2. The phrase “outsourcing IT initiatives” is vague. We think it is appropriate to distinguish investment in the IT portfolio, which are subject to OMB’s CPIC process, from IT applications, which are much smaller programs and locally managed. The rigor needed for the cost analysis around an IT investment is much higher than the rigor needed for the cost analysis around an application.
3. There are additional initiatives underway that lend guidance to how OEI should address cost estimating.
  - a. In response to GAO-12-629, Information Technology Cost Estimation: Agencies Need to Address Significant Weaknesses in Policies and Practices, OEI has incorporated the GAO Cost Estimating and Assessment guide by reference into its System Life Cycle Management (SLCM) procedure for the definition phase. The GAO guide covers many of the elements listed in Circular A-94. However, while Circular A-94 is about 4 pages long, the GAO guide is almost 400 pages.
  - b. In support of its ongoing work with OMB’s PortfolioStat, EPA is expanding the role of its Information Investment Subcommittee to an Information Investment Review Board (IIRB). This board is chartered to mature investment and portfolio management within EPA. This would be the appropriate “internal independent” body to assess the level of rigor needed respectively for CPIC Major, Medium, Lite, and Small/Other investments.

Proposed Alternative:

OEI proposes that recommendation #1 be replaced with a recommendation that as one of its first-year objectives, the IIRB expand upon the text currently in the SLCM to provide minimum guidelines for cost estimates and cost-benefits analyses, based on the distinction between CPIC levels.

**OIG Comment:** OEI did not concur with this recommendation and offered an alternate recommendation. We did not accept the proposed alternative recommendation. OEI did not provide sufficient information to allow us to determine whether its intended actions would satisfy the intent of our recommendation.

*Discussion of OIG Findings:*

***Chapter 2: Improvements needed in Email Cloud Implementation.***

This chapter includes a critique of the cost-benefit analysis developed in the business case that was used to make a decision whether to migrate email to the cloud. It states that the analysis “did not adhere with EPA and federal guidance<sup>22</sup>.” Specifically, the auditor calls out that the cost benefit analysis may include sunk costs, and that this is counter to the guidance in OMB Circular A-94.

OEI is not in complete agreement that the costs referred to by the auditor as sunk costs do completely represent sunk costs, as we believe they include capital refresh as well. Nonetheless, OEI acknowledges that given the tight timeframes around this project, the initial cost benefit analysis did not include all elements in the OMB A-94 guidelines. It was conducted to provide input to the decision whether to proceed; we understood that we would update the return on investment calculations as the project progressed.

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<sup>22</sup> We believe that in stating that OEI did not follow EPA guidance, the auditor is referring to the System Life Cycle Management (SLCM) policy. We would like to note that the initial cost estimate was conducted in April 2012, whereas the current policy was not signed until September 2012.

The report also faults the cost analysis on the premise that “OMB Circular A-76 indicates that the cost of contract performance should be based on the price to perform the requirements of the Performance Work Statement, as presented by the offeror to compete with the in-house workforce. OEI used estimates for migrating to the cloud and did not use the offeror’s price.” OEI considers this critique unfounded. First, we do not believe that OMB Circular A-76 is relevant to this transaction. This project replaced one commercial email system with another, and had nothing assessing whether the work performed was not inherently government and should be performed by the private sector. Second, the purpose of the cost benefit analysis was to inform the decision whether to move forward with the cloud migration; it thus preceded the acquisition activity, and could not have included the offeror’s price. The offeror’s price was later incorporated into an update of the initial analysis.

**OIG Recommendation 9 (Lead Office: OEI/OTOP/MISD)**

Develop and implement a strategy to perform a documented analysis of the assets remaining on the platform that supported the EPA’s internal email to determine which assets should be consolidated, retired and moved to the cloud or another platform.

**Explanation for Disagreement:**

OEI believes we need to take some time to document and consider lessons learned from our cloud migrations prior to starting the task of developing roadmaps. These lessons learned will be very helpful in addressing recommendation #12, “Publish detailed instructions for agency programs to use when considering moving applications to the cloud.” For example, we still need to assess SharePoint when it deploys, as it might provide a proper bed for the applications. We do concur with recommendation #12, and would consider that a precursor to addressing recommendations 9 – 11.

**Proposed Alternative:**

OEI proposes that we need to assess current lessons learned on cloud migration before mandating a full analysis of all applications for migration. For example, we need to assess the ability of SharePoint to host (and even evaluate) applications. We also believe that it is plausible that allowing the migration to happen organically via the application lifecycle process could be more to the agency’s advantage than evaluating all of them at once in order to create a single comprehensive roadmap.

**OIG Comment:** OEI did not concur with this recommendation and offered an alternate recommendation. We did not accept the proposed alternative recommendation. OEI did not provide sufficient information to allow us to determine whether its intended actions would satisfy the intent of our recommendation.

**OIG Recommendation 10 (Lead Office: OEI/OTOP/MISD)**

Develop and implement a strategy to perform a documented analysis of all the assets in the EPA’s IT portfolio to determine which assets should be consolidated, retired and moved to the cloud.

**Explanation for Disagreement:**

OEI does not concur, on the basis that this is a broad portfolio management initiative, broader than just cloud migration, and is being addressed separately via the new IIRB. The IIRB first-year objectives include a mandate from GAO to “identify criteria for identifying wasteful, low-value, or duplicative investments.” These criteria could include reference to whether cloud migrations have been considered.

Proposed Alternative:

OEI proposes allowing the first-year objective of the IIRB to serve as a proxy for this recommendation.

**OIG Comment:** OEI did not concur with this recommendation and offered an alternate recommendation. We did not accept the proposed alternative recommendation. OEI did not provide sufficient information to allow us to determine whether its intended actions would satisfy the intent of our recommendation.

**OIG Recommendation 11 (Lead Office: OEI/OTOP/MISD)**

Create and follow a roadmap to implement the consolidation, retirement and cloud migration of IT assets as identified in response to recommendations 9 and 10.

Explanation for Disagreement:

OEI would need to complete its proposed alternative responses to recommendations 9 and 10 before commenting on the appropriateness of this recommendation. We may find that this course of action is still appropriate, or we may identify an alternative course of action.

**OIG Comment:** OEI did not concur with this recommendation and offered an alternate recommendation. We did not accept the proposed alternative recommendation. OEI did not provide sufficient information to allow us to determine whether its intended actions would satisfy the intent of our recommendation.

**Discussion of OIG Findings:**

***Chapter 4: OEI Did Not Evaluate Whether Applications Could be Retired, Consolidated, and Moved to the Cloud***

In order to comment on this chapter, OEI needs to reiterate the distinction between “applications” and the “IT portfolio.” These are two different items and are managed in different ways. The term “IT Portfolio” describes all CPIC major, medium, lite, and other investments. The IT portfolio currently consists of about 120 investments. It is managed by the IIRB (described above), and the IIRB is co-chaired by the Deputy CIO and the Deputy CFO. “Application” is a generic term that refers to stand-alone software systems, the bulk of which are home-grown and designed to meet specific, local needs. EPA evaluated over 6,000 applications to ensure that the migration of email to the cloud would not break their functionality. Applications are managed locally throughout their lifecycle and are not part of the “IT Portfolio” and its governance processes described above.

This is an important distinction because the report states on page 17 that “OEI representatives indicated that OEI does not manage the IT portfolio for the agency...” then goes on to refute that statement from a policy basis. The OEI representatives made this statement in the context of applications, which are not under IIRB governance, rather than the IT portfolio. OEI believes this paragraph is misleading and should be removed.

**OIG Comment:** OMB Memorandum M-13-09 indicates that “As the Federal government implements the reform agenda, it is changing the role of Agency Chief Information Officers (CIOs) away from just policy making and infrastructure maintenance, to encompass true portfolio management for all IT.” We conclude that IT portfolio includes all IT.

## ***OARM Response to Draft Report and OIG Comment*** ***(May 30, 2014)***



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

OFFICE OF  
ADMINISTRATION  
AND RESOURCES  
MANAGEMENT

### **MEMORANDUM**

**SUBJECT:** Response to Revised Audit Report OA-FY13-0095: *Cloud Oversight Resulted in Unsubstantiated and Missed Opportunities for Savings, Unused and Undelivered Services, and Incomplete Policies*

**FROM:** Craig E. Hooks, Assistant Administrator

A handwritten signature in black ink, appearing to read "Craig E. Hooks".

**TO:** Arthur A. Elkins, Jr.  
Inspector General

OARM has reviewed revised OIG audit OA-FYB-0095, and provides the following response to new and existing audit findings.

### **OARM Recommendations and Responses**

**Recommendation 2: Determine the difference in cost between not moving all the email to the cloud within the agreed-to time frames as specified in the contract and just moving 30 days of email, and seek an equitable reduction in price.**

**OARM Response:** In the draft report, the OIG described the scenario leading to the above recommendation as "after entering into the contract, OEI indicated that the vendor stated it could not transfer all of the e-mail in the timeframe required by the contract. As a result, OARM's Contracting Officer (CO) verbally allowed the vendor to transfer only 30 days' worth of e-mail. Even though the vendor did not perform the work agreed to in the contract the CO did not issue a cure notice or seek to renegotiate the 'price of the contract with an equitable reduction in price.'" The Office of Acquisition Management (OAM) does not believe these general statements accurately represent the circumstances that resulted in an authorized change order to the contract. Pursuant to the changes clause of the contract (FAR 52.243-1), the contracting officer is authorized to direct changes within the general scope of the contract (FAR 4 3.201). Moreover, in light of the fact that the contracting officer considered such changes to be within the scope of the changes clause, the terms and conditions relating to potential termination (e.g., issuance of a

show cause or cure notice) did not apply. With respect to the statement that the contracting officer did not seek to renegotiate the price of the contract with an equitable reduction in price, such a statement implies that a reduction in price is the only consideration that would be applicable and appropriate for contract changes. In fact, equitable adjustments resulting from contract changes can take various forms depending on the type of contract and the nature of such changes. For example, adequate consideration for authorized changes may, and in this case did, include the contractor absorbing increased costs it was required to incur for performance of the changed contract.

Contract EP-G12H-00522 was awarded to the vendor on September 14, 2012 in support of an EPA requirement to replace the current enterprise on premise e-mail, collaboration and Blackberry Enterprise solution, with a Software as a Service (SaaS) services and support contract. In accordance with the solicitation, the successful offer included a fixed-price four (4) month transition period during which email would be migrated from the old to the new software using a migration tool. As a result of subsequent EPA identified risks, modification 2 of the contract extended the migration period to five (5) months and adjusted the fixed-price by \$112,359. In mid-December 2012, the vendor notified EPA that a latent defect in the proposed migration tool discovered during testing would severely protract the speed of the migration, from six (6) weeks to over two (2) years. With this notification, the EPA had three choices: (1) terminate the contract for default, (2) require the contractor to execute the migration over two years at no increase in contract price, or (3) negotiate an appropriate contract change. Contract termination was not an option as this requirement was mission critical. Extending the migration over two years was not an option as this approach would have resulted in the EPA continuing to use unsupported Lotus Notes software during the migration. Negotiation was the only viable approach to reaching a solution. As a result, the vendor proposed three solutions to this problem and the parties entered into negotiations. Each of the three proposed solutions included migration of all e-mail over extended timeframes (from four [4] to seven [7] months), and the vendor had already purchased a new migration tool proposed under one option. After considering the proposed solutions, EPA and the vendor negotiated a fourth solution, which required the vendor to migrate only 30 days of e-mail over a weekend. The migration was accomplished, and in January 2013 the vendor entered into discussions with the EPA on contract scope changes effected since award, which other than the afore-mentioned option four (4) solution included a new encryption solution, additional migration schedule changes and the need for additional help desk surge support, and Blackberry infrastructure changes driven by security considerations. Although the vendor indicated costs were associated with each scope change, the contractor did not file a claim for equitable adjustment for any increased costs incurred. Furthermore, specific to the negotiated option four (4) change, the vendor offered to provide up to three (3) additional e-mail administrators at no additional cost from January through August 2013 as consideration to the EPA for the scope change. Any of the costs associated with these changes could have been offset against costs incurred by EPA resulting from the change in migration scope. Negotiations continued between the parties and were ultimately settled in July 2013. In the negotiated solution, the CO and contractor agreed to an equitable settlement in which the Government would not be charged any increased costs incurred by the contractor for these changes. OAM believes the more detailed description of the events surrounding this procurement above demonstrate that: (1) the decision to transfer only 30 days of e-mail was documented on the record prior to the formal July 2013 contract modification, (2) a cure notice was not necessary as

the parties were in negotiations to resolve contract changes not governed by the terminations clause, and (3) the decision not to adjust the contract price was not frivolous but rather part of a well-considered, negotiated agreement.

It is important to note the EPA's need to maintain Lotus Notes resulted from drivers other than agency wide e-mail, as various agency offices were still using Lotus Notes databases. Consequently only a portion of Lotus Notes maintenance resulted from partial e-mail migration. Lastly, under modification four (4) to the contract the EPA negotiated consideration for the lack of required encryption functionality which is calculated on a monthly basis and has resulted in credits of approximately \$42,000 to the Agency to date.

Finally, the July 2013 modification revises the Statement of Work to require the vendor to migrate the "Most recent 30 days of Email", and also states "In consideration of the modification agreed to herein as complete equitable adjustment based on the Contractor's revised proposal dated June 18, 2013, the Contractor hereby releases the Government from any and all liability under this contract for further equitable adjustments attributable to such facts or circumstances giving rise to the proposal referenced above. This release shall also apply to the additional changes made to the Statement of Objectives".

This language creates a complete and final equitable adjustment on the above-described contract change per FAR 43.204(c). As such, the Government has no legal basis to re-open negotiations on this subject.

**OIG Comment:** The OIG removed this recommendation because, subsequent to the OIG notifying the Office of Acquisition Management that the contracting officer had never issued a written modification associated with the oral agreement, the Office of Acquisition Management issued a written modification which included this scope change.

OARM's response to the draft report indicated that the Office of Acquisition Management and the contractor signed a formal (written) modification in July 2013 (subsequent to the OIG informing the Office of Acquisition Management that there was no written modification), that included reducing the amount of email to be migrated by the vendor to only the most recent 30 days of email and included language waiving EPA's right for further equitable adjustment for this modification. Additionally, the Office of Acquisition Management's response indicated that the vendor claimed that there were costs associated with other scope changes (including a new encryption solution, additional migration schedule changes and the need for additional help desk surge support, and Blackberry infrastructure changes driven by security considerations) for which the contractor did not file a claim for an equitable adjustment. Further, according to the actual modification, this modification changed the incremental funded amount from \$3,427,891 to \$3,573,891.

The OIG was unable to verify that the modification would achieve the desired results due to the time constraints of the audit.

**Recommendation 3: Develop training and oversight to help ensure contracting officers:**

- a. Issue cure notices when they become aware that a vendor will not meet its contractual obligations.**
- b. Negotiate equitable reductions when vendors are not able to fulfill their contractual obligations.**
- c. Add written amendments to contracts for all contract modifications.**

OARM Response: OARM agrees with these recommendations as sufficient regulatory and policy guidance already exists in FAR Part 49 on Cure Notices, and in FAR Parts 43 and 49, and CMM Part 42 on Equitable Adjustments. To perform oversight and compliance with these policies, OAM will identify contractor performance issues as a critical focus area for future contracting activity under the self-assessment and peer review components of the BSC PMMP.

With regard to contract file documentation, OAM has self-identified inadequate file documentation as a recurring finding under the BSC PMMP Peer Review program, and has directed a number of corrective actions, including the institution of more robust internal control reviews of procurement transactions. Policy that has already been updated to foster improvement in this area includes the attached excerpts from the OAM Acquisition Handbook "Update to Acquisition Handbook 4.1 Reviews, Concurrences, and Checklists" (entire document at <http://oarnintra.epa.gov/node/47>, and updated via Interim Policy Notice (IPN) 12-03 "Acquisition Planning" at <http://oamintraepagov/node/8?q=node/158>), which Contract Checklists of documents to be filed in the official contract file. Again, OAM will continue to use the self-assessment and peer review components of the BSC PMMP to monitor compliance with these policies. IPN 12-03 was published on October 14, 2013, and Acquisition Handbook 4.1 was published on December 19, 2013, which may be used as the corrective action completion date for this recommendations.

Furthermore, several initiatives resulting from OAM's Contract Management Assessment Program (CMAP) Peer Reviews, as well as OARM's Centers of Expertise in contracting initiative, will establish new or improved functional requirements in this area. These include establishing independent business clearance reviews of pre- and post-award actions, and heightened accountability for obtaining and retaining delegations of contracting authority. Additionally, a BSC initiative on contract management planning has been developed in FY 2014 to identify process improvements, policies and other tools to improve both contract file documentation and administration activities. To perform oversight, again OAM will use the self-assessment and peer review components of the BSC PMMP to monitor and report on compliance with applicable regulations, policies, and guidance. OAM oversight activities are ongoing.

**OIG Comment:** OARM agreed to the recommendation and indicated in its response to the draft report that it has taken actions to address this recommendation. However, due to the time constraints of the audit, we were not able to validate that the actions achieved the desired results.

**Recommendation 8: Establish formal oversight processes and training to ensure that the requirements for use of the USGv6 Profile and Test Program for the completeness and quality of their 1Pv6 capabilities are met within all applicable IT contracts or that a waiver is obtained from the CIO prior to issuing an applicable IT contract that does not meet the requirements, as required by FAR.**

**OARM Response:** OARM agrees with this recommendation. Although supporting documentation for this procurement indicates the CIO relieved solicitation compliance requirements as a result of market research indicating there were no solutions to the technical requirement, and was also aware the awardee would not be in compliance until September 2013, the FAR requires a waiver. Subsequent to the award of this contract, OAM issued Interim Policy Notice (IPN) 12-03, "Acquisition Planning" at <http://oamintra.epa.gov/node/8?q=node/158>, which implements a robust acquisition planning process including use of an acquisition planning team to conduct planning in support of all procurements above the simplified acquisition threshold. Under IPN 12-03, pre-award acquisition planning on information technology (IT) requirements includes discussions to ensure these requirements are solicited and the file documented in accordance with applicable regulations, policy and guidance, and OAM uses the self-assessment and peer review components of the Balanced Scorecard Performance Measurement and Management Program (BSC P:MMP) to monitor compliance post-award. IPN 12-03 was published on **October 14, 2013**, which may be used as the completion date for this corrective action.

Furthermore, as the self-assessment and peer review checklists are subject to regular review and updating, OAM will use this process as a mechanism to focus on compliance areas identified through internal and external reviews, including audit findings such as recommendation 8 above. Finally, on the instant procurement the CO obtained a waiver for the follow-on action under this contract, which is in the contract file.

**OIG Comment:** OARM agreed to the recommendation and indicated in its response to the draft report that it has taken actions to address this recommendation. However, due to the time constraints of the audit, we did not verify that the actions effectively corrected the deficiency.

cc: Nanci Gelb, Principal Deputy Assistant Administrator, OARM  
Rudolph M. Brevard, Director, Information Resource Management Audits  
John Bashista, Director, Office of Acquisition Management, OARM  
Todd Hanson, Director, OAM Headquarters Procurement Operation Division, OARM  
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