



United States Government Accountability Office
Washington, DC 20548

September 10, 2012

Congressional Committees

Subject: *Defense Management: The Department of Defense's Annual Corrosion Budget Report Does Not Include Some Required Information*

In 2012, the Department of Defense (DOD) estimates that corrosion costs the Department about \$20.9 billion annually. Corrosion can negatively affect all military assets, including both equipment and infrastructure, and is defined as the deterioration of a material or its properties due to a reaction of that material with its environment.¹ Corrosion also affects military readiness by taking critical systems out of action and creating safety hazards.

Section 2228 of Title 10 of the United States Code requires DOD, as part of its annual budget submission, to submit a report to Congress on corrosion funding. In the report, DOD is to include (1) funding requirements for its long-term corrosion reduction strategy, (2) the return-on-investment (ROI) that would be achieved by implementing the strategy, (3) the current and previous fiscal year funds requested in the budget compared to funding requirements, (4) an explanation if funding requirements are not fully funded in the budget, (5) the amount of funds requested for both the current and previous fiscal years in the budget for each project or activity described in DOD's long-term strategy compared to the funding requirements for the project or activity, and (6) a copy of the annual corrosion report most recently submitted by the corrosion control and prevention executive of each military department as an annex to its report. The military departments' reports are to include recommendations pertaining to the department's corrosion control and prevention program and related funding levels to carry out all of the duties of the corrosion control and prevention executive.²

Section 2228 also requires us to analyze DOD's budget submission and report and provide an assessment to the congressional defense committees within 60 days after the submission of the budget for the fiscal year,³ which this year occurred on February 13, 2012. DOD submitted its annual report to Congress on May 21, 2012, and we received the report on May 23, 2012. Our objectives were to (1) determine the extent to which DOD's corrosion report included the mandated elements, (2) assess the extent to which DOD's Corrosion Prevention and Control (CPC) funding request met total estimated CPC funding requirements for activities and

¹10 USC § 2228(f)(1). Corrosion includes such varied forms as rusting; pitting; galvanic reaction; calcium or other mineral buildup; degradation due to ultraviolet light exposure; and mold, mildew, or other organic decay.

²Pub. L. No. 110-417, § 903 (2008).

³Section 2228(e)(2).

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preliminary project proposals as identified in the fiscal year 2013 corrosion report, and (3) calculate the potential cost avoidance that DOD may achieve by funding CPC at the level requested in its fiscal year 2013 corrosion budget materials report and the cost avoidance DOD may miss by not fully funding its requirements. Enclosure I provides briefing slides for congressional committees detailing the results of our analysis of DOD's CPC budget request and the Office of Corrosion Policy and Oversight's (CPO) accompanying report for fiscal year 2013.

To conduct this work, we analyzed DOD's report to determine if it included the mandated elements, including the extent to which one of these elements—the military departments' annual corrosion reports—contained recommendations pertaining to the military departments' CPC program and corrosion-related funding levels that are required to carry out all of the duties of the corrosion control and prevention executive. Additionally, we analyzed data on DOD's fiscal year 2013 CPC funding request and met with officials from the military departments and the Corrosion Policy and Oversight office. A more detailed description of our objectives, scope, and methodology is provided in enclosure I. We conducted this performance audit from February 2012 to September 2012 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

In summary, we found that DOD's fiscal year 2013 corrosion budget report to Congress (1) included some, but not all of the six mandated elements; (2) included a funding request that equals DOD's fiscal year 2013 stated requirements for corrosion activities and projects; and (3) lacked information needed to calculate the potential cost avoidance. First, DOD included three of the six mandated elements, did not include two of the elements, and one of the elements was not applicable this year. For example, DOD included the most recent annual corrosion reports of the military departments, attached in an annex. However, it did not include the funds requested in the budget compared to the funding requirements for the fiscal year covered by the report or the previous fiscal year. Second, DOD officials stated that the fiscal year 2013 budget request and the fiscal year 2013 funding requirements for activities and projects are the same this year—\$9.1 million. According to these officials, DOD does not have any fiscal year 2013 unfunded requirements for corrosion activities and projects. Third, we did not calculate the cost avoidance DOD could achieve with its fiscal year 2013 budget request, because the analysis that DOD provided does not support the 14 to 1 average ROI for projects cited in its report. Further, we did not calculate the cost avoidance that DOD might be missing by not funding its requirements, because DOD officials said that they do not have any unfunded requirements this year. Without all of the required information on DOD's corrosion prevention and control activities and projects, DOD senior leaders and Congress may face challenges in assessing the levels of funding needed to effectively prevent and control corrosion.

For additional information on the results of our work, see enclosure I.

Recommendations for Executive Action

To ensure that Congress has the accurate and comprehensive information it needs to exercise its oversight responsibilities, we recommend for fiscal year 2013 and beyond that the Secretary of Defense direct the Under Secretary of Defense for Acquisition, Technology and Logistics to take the following three actions:

- Provide in the annual corrosion budget report to Congress a more detailed explanation of the development of DOD's funding requirements.
- Include in the annual corrosion budget report to Congress the funds requested in DOD's budget compared to the funding requirements for the fiscal year covered by the report and the preceding fiscal year.
- Provide in the annual corrosion budget report to Congress an explanation of DOD's ROI methodology and analysis, including both projected and, to the extent available, validated ROIs.

Agency Comments and Our Evaluation

We provided a copy of a draft of this report to DOD for comment. In its written comments, which are reprinted in enclosure II, DOD did not agree with our three recommendations.

DOD did not concur with our recommendation to provide in its annual corrosion budget report to Congress a more detailed explanation of how it developed its funding requirements. DOD stated that the report as submitted provides Congress with all of the information it needs to exercise its oversight responsibilities. Section 2228 of Title 10 of the United States Code required us to determine the extent to which DOD's report to Congress included, among other things, funding requirements for its long-term corrosion reduction strategy. Our review found that DOD's report to Congress included \$9.1 million as its fiscal year 2013 funding requirements. However, the supporting analysis DOD provided us did not support the \$9.1 million funding requirements. In addition, DOD's comments make reference to its corrosion strategic plan and process for executing projects and activities. Specifically, DOD cites a 2010 GAO report noting that DOD had established a rigorous process to select corrosion prevention projects.⁴ Our recommendation focused on DOD's explanation of how it developed its corrosion budget funding requirements and not DOD's process for the selection or execution of its corrosion projects and activities. Therefore, we continue to believe that DOD should provide in its annual corrosion budget report a more detailed explanation of the development of its funding requirements for fiscal year 2013 and beyond. Without details on the methodology, Congress lacks key information about whether DOD's funding of the CPC program can address the current and future costs of corrosion prevention and control.

DOD did not concur with our recommendation to provide in its annual corrosion budget report to Congress the funds requested in the budget compared to the funding requirements for the fiscal year covered by the report and the preceding fiscal year. Our recommendation is consistent with Section 2228(e)(1)(c) of Title 10 U.S.C., which requires DOD to include in its annual report the funds requested in the budget compared to the funding requirements for the fiscal year covered by the report and the preceding fiscal year. In its comments, DOD stated that the funds

⁴GAO, *Defense Management: DOD Has a Rigorous Process to Select Corrosion Prevention Projects But Would Benefit from Clearer Guidance and Validation of Returns on Investments*, [GAO-11-84](#) (Washington, D.C.: Dec. 8, 2010).

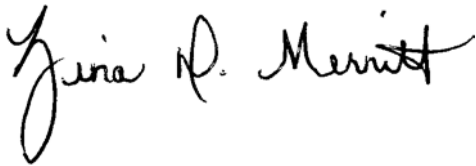
requested in the budget are equal to the funding requirement and that the funds requested in the budget reflect the required corrosion program funding considering overall DOD needs. However, we found that DOD's report to Congress did not include the funding requirements compared to the funding request for either the fiscal year covered by the report (fiscal year 2013) or the preceding fiscal year (fiscal year 2012). Instead, DOD reported the actual funding it received for CPC compared to the funding request, and only for the preceding fiscal year. During our review, DOD officials stated that the data for fiscal year 2013 are not included because, in keeping with the decision to report actual funding, DOD did not know what its funding for fiscal year 2013 would be at the time it submitted its report. In the fiscal year 2013 corrosion budget report, DOD did not provide the funding requirements for fiscal year 2012, but instead reported its actual funding compared to the funding request. During our review, DOD officials stated that the decision to report actual funding as opposed to the funding requirements for fiscal year 2012 was a senior leadership decision. We continue to believe that DOD should include this mandated information in its future annual corrosion budget reports. Without all the required information, DOD senior leaders and Congress may face challenges in assessing the levels of funding needed to effectively prevent and control corrosion.

DOD did not concur with our recommendation to provide in its annual corrosion budget report to Congress an explanation of DOD's ROI methodology and ROI analysis, including both projected and, to the extent possible, validated ROIs. DOD's comments referenced the methodology included in the *DOD Corrosion Prevention and Mitigation Strategic Plan*, which the military departments use to estimate the projected ROI of each project. As we acknowledge in this report, this methodology is clear and meets the guidance established by the Office of Management and Budget. However, DOD performs an additional analysis to determine the projected average ROI for projects that it cites in its corrosion budget report to Congress. Our recommendation is directed at this additional analysis and the methodology that supports the calculated ROI figure included in DOD's report to Congress. During our review, CPO officials stated that the office performed an analysis and determined that the average ROI for projects was in excess of 14 to 1. Further, they stated that the analysis contained some validated ROIs. However, the ROI analysis DOD provided only contains the projected ROIs and does not contain the more up-to-date validated ROIs. Therefore, we cannot confirm whether this ROI is accurate or whether validated ROIs were included. In addition, DOD's comments cite GAO statements from our review of last year's (fiscal year 2012) corrosion budget report, where we state that we assessed the data to be sufficiently reliable.⁵ We performed the same assessment this year but came to the opposite conclusion because of the findings above. We continue to believe that more information on the analysis and methodology that support the ROI for projects cited in DOD's annual report would help assure Congress that those numbers are based on the most up-to-date and accurate information.

⁵GAO, *Defense Management: The Department of Defense's Fiscal Year 2012 Corrosion Prevention and Control Budget Request*, [GAO-11-490R](#) (Washington, D.C.: Apr. 13, 2011).

We are sending copies of this report to the appropriate congressional committees. We are also sending copies to the Secretary of Defense; the Deputy Secretary of Defense; the Under Secretary of Defense for Acquisition, Technology and Logistics; the Secretaries of the Army, Navy, and Air Force; and the Commandant of the Marine Corps. The report also is available at no charge on the GAO website at <http://www.gao.gov>.

Should you or your staff have questions concerning this report, please contact me on (202) 512-5257 or merrittz@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made key contributions to this report are Carleen Bennett, Assistant Director; Mark Dowling; Dawn Godfrey; Joanne Landesman; Charles Perdue; Carol Petersen; Matthew Spiers; Amie Steele; and John Van Schaik.

A handwritten signature in black ink that reads "Zina D. Merritt". The signature is fluid and cursive, with the first name "Zina" being the most prominent part.

Zina D. Merritt
Director
Defense Capabilities and Management

Enclosures - 2

List of Committees

The Honorable Carl Levin
Chairman
The Honorable John McCain
Ranking Member
Committee on Armed Services
United States Senate

The Honorable Daniel K. Inouye
Chairman
The Honorable Thad Cochran
Ranking Member
Subcommittee on Defense
Committee on Appropriations
United States Senate

The Honorable Howard P. "Buck" McKeon
Chairman
The Honorable Adam Smith
Ranking Member
Committee on Armed Services
House of Representatives

The Honorable C.W. "Bill" Young
Chairman
The Honorable Norman D. Dicks
Ranking Member
Subcommittee on Defense
Committee on Appropriations
House of Representatives



***Defense Management: The Department of Defense's
Annual Corrosion Budget Report Does Not Include Some
Required Information***

Briefing for Congressional Committees

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Background

- Defense system maintenance involves the sustainment of about 300 ships, 15,000 aircraft, 900 strategic missiles and 350,000 ground combat and tactical vehicles and costs about \$52 billion each year.¹ In 2012, the Department of Defense (DOD) estimates that corrosion-related maintenance accounts for about \$20.9 billion a year.
- Corrosion affects all military assets and is defined as the unintended destruction or deterioration of material due to interaction with the environment. Corrosion takes such varied forms as rusting; pitting; galvanic reaction; calcium or other mineral buildup; degradation due to ultraviolet light exposure; and mold, mildew, or other organic decay.
- In addition, corrosion can have negative effects on military equipment and infrastructure in terms of readiness and safety. GAO has previously reported that corrosion negatively affects military readiness by taking critical systems out of action. It has also impacted safety, resulting in fatal accidents due to the degradation of equipment.²

¹ Department of Defense, *Department of Defense Corrosion Prevention and Control Strategic Plan* (Washington, D.C.: 2011).

² GAO, *Defense Management: High-Level Leadership Commitment and Actions Are Needed to Address Corrosion Issues*, GAO-07-618 (Washington, D.C.: Apr. 30, 2007).

Background (cont.)

Congress has enacted several legislative requirements – codified at 10 U.S.C. 2228 – to address the high cost of corrosion and its negative effects.

- In 2002, Congress passed legislation that led to the creation of the Office of Corrosion Policy and Oversight (CPO) within the Office of the Under Secretary of Defense for Acquisition, Technology and Logistics (AT&L). CPO is responsible for the prevention and mitigation of corrosion of military equipment and infrastructure.³
- In 2008, Congress required DOD to submit an annual report on its Corrosion Policy and Oversight budget materials and required GAO to review the report.⁴
- In 2008, Congress also directed the military departments to designate a corrosion control and prevention executive to be the senior official in the department responsible for coordinating corrosion prevention and control activities with the Office of the Secretary of Defense (OSD) and within the department.⁵
- In 2011, Congress added requirements for DOD to include additional elements in its annual budget materials report.⁶

³ See Pub. L. No. 107-314, § 1067 (2002).

⁴ See Pub. L. No. 110-181, § 371(d) (2008).

⁵ See Pub. L. No. 110-417, § 903 (2008). The Army and Navy have named corrosion control and prevention executives. The Air Force corrosion control and prevention executive position had been vacant since late 2010. The Air Force appointed an executive in April 2012.

⁶ See Pub. L. No. 111-383, § 331(1), (3) (2011) (amending Section 2228(e) of Title 10).

Background (cont.)

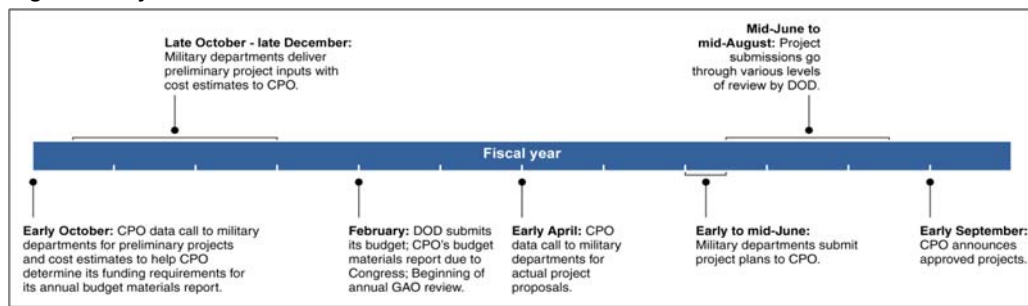
DOD began targeting funding toward Corrosion Prevention and Control (CPC) in fiscal year (FY) 2006, when it established a separate program funding element for Research, Development, Test and Evaluation and a separate corrosion line item within an existing program element for Operation and Maintenance. CPO manages this program element and line item. According to DOD's report to Congress, part of this funding goes toward DOD-wide CPC activities, while the rest of the funding goes toward technology demonstration projects proposed by the military departments.

- DOD's CPC activities include such things as conducting cost of corrosion studies and operating DOD's corrosion website. CPO identifies these as "required activities" that are essential to the success and institutionalization of the corrosion program within DOD.
- The projects are military department technology demonstration projects for both weapon systems and infrastructure that meet CPO's criteria for funding. The projects are jointly funded by CPO and the military departments. CPO typically limits its funding contribution to a maximum of \$500,000 per project.

Background (cont.)

- The military departments submit
 - **Preliminary project proposals** in the fall and
 - **Actual project proposals** in the spring for CPO's funding approval.
- Projects that meet CPO's criteria for funding are announced at the end of the fiscal year. Figure 1 describes the process in detail.

Figure 1: Project Timeline



Source: GAO analysis of DOD data.

Background (cont.)

- As part of the project selection process, CPO requires that an estimated return-on-investment (ROI) cost-benefit analysis be submitted for each actual project proposal.
- The estimated ROI is the ratio of the present value of benefits to the present value of the actual project proposal's total cost. The total cost for each project is based on both the funding requested from CPO and the funding provided by the military department.
 - CPO's guidance uses a 7 percent annual discount rate to estimate the present value of benefits and costs, which adheres to guidance for public investments in the Office of Management and Budget's Circular A-94. According to CPO officials, this is a conservative estimate to avoid overstating the project's eventual ROI.
 - Estimated ROIs and savings vary for each actual project proposal submitted by the military departments.
- CPO officials informed us that a military department point of contact estimates the ROI that is included in the actual project proposals. A senior official within each military department reviews the actual project proposal, including the estimated ROI, before the proposal is submitted to CPO.
- DOD is required to include the expected ROI that would be achieved by funding its requirements in its annual report to Congress.

Background (cont.)

The Secretary of Defense is mandated to submit annually, with defense budget materials, a corrosion funding report with information on the following six elements:⁷

- Funding requirements for the long-term strategy to reduce corrosion and its effects.
- The return-on-investment that would be achieved by implementing the strategy.
- The funds requested in the budget compared to the funding requirements for the fiscal year covered by the report and the preceding fiscal year.
- An explanation if the funding requirements are not fully funded in the budget.
- For the fiscal year covered by the report and the preceding fiscal year, the amount of funds requested in the budget for each project or activity in the long-term strategy compared to the funding requirements for the project or activity.
- In an annex, a copy of the most recent annual report submitted by the corrosion control and prevention executive of each military department to the Secretary of Defense.⁸ Each military department report is mandated to include (1) recommendations pertaining to the military department's CPC program and (2) corrosion-related funding levels required to carry out all of the duties of the corrosion control and prevention executive.

⁷ 10 U.S.C. § 2228(e).

⁸ These annual reports are due not later than December 31 of each year. See Pub. L. No. 110-417, § 903 (2008).

Background (cont.)

- In last year's report reviewing DOD's fiscal year 2012 CPC budget request and budget report, we recommended that the Secretary of Defense take the following two actions to ensure that Congress has the information it needs to exercise its oversight responsibilities:⁹
 - Direct the Under Secretary of Defense for Acquisition, Technology and Logistics to include all required elements in DOD's future corrosion reports.
 - Direct the Secretary of each military department to provide the required information on funding levels necessary to carry out all duties of the corrosion control and prevention executive. As the military departments develop the elements needed to provide the full funding levels, they should include these elements in their annual reports.
- DOD concurred with the recommendations in that report.

⁹ GAO, *Defense Management: The Department of Defense's Fiscal Year 2012 Corrosion Prevention and Control Budget Request*, GAO-11-490R (Washington, D.C.: Apr. 13, 2011).

Objectives

As mandated,¹⁰ we analyzed DOD's CPC funding request and its accompanying corrosion report for FY 2013. We had three reporting objectives:

1. Determine the extent to which DOD's corrosion report included the six mandated elements.
2. Assess the extent to which DOD's CPC funding request met total estimated CPC funding requirements for activities and projects as identified in the FY 2013 DOD corrosion report.
3. Calculate the potential cost avoidance that DOD may achieve by funding CPC at the level requested in its FY 2013 corrosion budget materials report and the cost avoidance DOD may potentially miss by not fully funding its requirements.

¹⁰ 10 U.S.C. § 2228(e)(2).

Scope and Methodology

To determine the extent to which DOD's annual corrosion budget report included the six mandated elements, as well as the extent to which one of these elements—the military departments' annual corrosion reports—included recommendations pertaining to the military departments' CPC program and corrosion-related funding levels required to carry out all of the duties of the corrosion control and prevention executive, we

- Independently reviewed the annual report using two analysts, compared and reconciled their observations, and recorded the analysts' consensus observations;
- Discussed our preliminary analyses with CPO and military department officials to seek additional information in those cases where we determined that a report did not include the mandated elements; and
- Considered the element to be "included" when the report explicitly discussed all parts of the mandated element and "not included" when the report did not explicitly address any part of the element. If the report included some aspects of an element, but not all, then we considered the element "partially included."

Scope and Methodology (cont.)

- To determine the extent to which DOD's CPC funding request met DOD's total estimated CPC funding requirements for activities and projects, we analyzed DOD's FY 2013 corrosion report and interviewed DOD officials.
- To determine the cost avoidance¹¹ that DOD may achieve by funding CPC at the level requested in its FY 2013 corrosion budget materials report and the cost avoidance DOD may potentially miss by not fully funding its requirements,
 - We reviewed DOD's FY 2013 corrosion report, interviewed DOD officials, and requested further documentation and details about how DOD determined the ROI cited in its report.
 - We did not independently validate DOD's estimated CPC activity ROI or the assumptions that support the projected or validated ROIs of individual projects. We did compare projected ROIs to validated ROIs where available to determine if DOD was using the most up-to-date ROIs.

¹¹ In the past, we have calculated the cost avoidance DOD could achieve with its budget request by taking the requests for both projects and activities and multiplying those amounts by the respective ROIs reported by DOD. In the past, we have also calculated the cost avoidance DOD might be missing by not fully funding its requirements by taking the shortfalls for both projects and activities and multiplying them by the respective ROIs reported by DOD.

Scope and Methodology (cont.)

We conducted this performance audit from February 2012 through September 2012 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Summary – Objective 1

Objective 1 – Determine the extent to which DOD’s corrosion report included the six mandated elements.

Of the six mandated elements, DOD’s FY 2013 corrosion report included three elements, did not include two elements, and one element was not applicable this year.

Figure 2: GAO Assessment of DOD’s Fiscal Year 2013 Corrosion Budget Report

Six mandated elements	GAO assessment
Funding requirements for the long-term strategy	Included
The return-on-investment (ROI) that would be achieved by implementing the strategy	Included
For the fiscal year covered by the report and the preceding year, the funds requested in the budget compared to the funding requirements.	Not included
An explanation if the funding requirements are not fully funded in the budget.	Not applicable ^a
For the fiscal year covered by the report and the preceding year, the amount of funds requested in the budget for each project or activity compared to the funding requirements for the project or activity.	Not included ^b
A copy of the annual corrosion report most recently submitted by the corrosion control and prevention executive of each military department, to include (1) recommendations pertaining to the military department’s CPC program and (2) corrosion-related funding levels required to carry out all of the duties of the corrosion control and prevention executive (in an annex to the report).	Included

^a DOD cited various reasons why the funding requirements may not be fully funded in the budget, but no explanation was needed since the funding requirements are fully funded in the budget, according to CPO officials.

^b For the fiscal year covered by the report, DOD cannot provide this information, because it does not know what projects it will perform at the time of its report.

Source: GAO analysis of DOD data.

Summary – Objective 1 (cont.)

- **DOD’s corrosion report included three elements:** corrosion funding requirements for FY 2013, the ROI for projects and activities, and the annual military departments’ reports in an annex. However, the report would have benefited from additional information in some areas. For example, while the report included a funding requirement of \$9.1 million, the analysis and documentation that DOD provided did not support how it determined this funding requirement.
- **DOD’s corrosion report did not include two elements:** the funds requested in the budget compared to the funding requirements for the fiscal year covered by the report and the preceding fiscal year; and the amount of funds requested in the budget compared to the funding requirements for each project or activity in the strategy for the fiscal year covered by the report and the preceding fiscal year.
- **One element was not applicable this year:** an explanation of the reasons the funding requirements are not fully funded in the budget. DOD’s corrosion report contains such an explanation; however, as reported by CPO officials, the funding requirements are fully funded in the budget request for FY 2013. Therefore, no explanation is necessary.
- Without all the required information, DOD senior leaders and Congress may face challenges in assessing the levels of funding needed to effectively prevent and control corrosion.

Summary – Objective 2

Objective 2 – Assess the extent to which DOD’s CPC funding request met total estimated CPC funding requirements for activities and projects as identified in the FY 2013 DOD corrosion report.

DOD requested \$9.1 million for CPC in its FY 2013 budget. According to DOD officials, the FY 2013 funding requirements are also \$9.1 million, so the funding request meets the funding requirements for FY 2013.

Summary – Objective 3

Objective 3 – Calculate the potential cost avoidance that DOD may achieve by funding CPC at the level requested in its FY 2013 corrosion budget materials report and the cost avoidance DOD may potentially miss by not fully funding its requirements.

- We did not calculate the cost avoidance DOD could achieve with its FY 2013 budget request, because the analysis DOD provided does not support the average ROI for projects cited in its report and does not contain the most up-to-date information, as recommended by GAO guidance.¹²
- According to DOD officials, DOD's funding requirements are the same as the budget request. Therefore, we also did not calculate a cost avoidance for what DOD might be missing.
- Without assurance that DOD's average ROI for projects is based on the most complete and up-to-date data, Congress will not have the complete information it needs to make well-informed decisions about CPC's budget.

¹² GAO, *GAO Cost Estimating and Assessment Guide: Best Practices for Developing and Managing Capital Program Costs*, GAO-09-3SP (Washington, D.C.: March 2009).

Objective 1 – Extent report included mandated elements

DOD's corrosion report included three of six mandated elements

DOD's corrosion report included corrosion funding requirements for FY 2013, the estimated ROI for projects and activities, and the most recent annual corrosion reports of the military departments.

- 1. Funding requirements for the long-term strategy—Included.** For FY 2013, DOD reported CPC funding requirements of \$9.1 million – approximately \$4.6 million for corrosion activities and approximately \$4.5 million for technology demonstration projects. According to DOD officials, DOD senior leadership decided to align the funding requirements to the President's budget request in FY 2013. This resulted in funding requirements considerably less than in past years. DOD officials told us that there was supporting analysis for how DOD calculated its FY 2013 funding requirements, but the analysis DOD provided us did not support the \$9.1 million funding requirements.

The report would have benefited from additional information on how DOD calculated its funding requirements. Without details on the methodology, Congress lacks key information about whether DOD's funding of the CPC program can address the costs of corrosion prevention and control. GAO guidance states that cost estimating assumptions should be complete, realistic and backed up by historical data.¹³

¹³ GAO-09-3SP.

Objective 1 – Extent report included mandated elements

DOD's corrosion report included three of six mandated elements (cont.)

2. The return-on-investment that would be achieved by implementing the strategy—Included.

DOD reported an average ROI in excess of 14 to 1 for technology demonstration projects and 2 to 1 for corrosion activities.

- CPO officials stated that the office performed an analysis and determined that the average ROI for projects was in excess of 14 to 1. Further, they stated that the analysis contained some validated ROIs. However, the ROI analysis DOD provided only contains the projected ROIs and does not contain the more up-to-date validated ROIs. Also, documentation does not explain how the department determined its reported projected ROI in excess of 14 to 1. Therefore, we cannot confirm whether this ROI is accurate or whether validated ROIs were included.¹⁴
- DOD officials stated that, due to the nature of the CPC activities, it is difficult to quantify an ROI for activities. The 2 to 1 ROI for activities cited in DOD's report is an estimate that officials believe is conservative.

¹⁴ For more information on the validated ROIs of projects versus the projected ROIs of projects, see Objective 3.

Objective 1 – Extent report included mandated elements

DOD’s corrosion report included three of six mandated elements (cont.)

3. Copies of the most recent annual reports of the military departments – Included. DOD’s report includes the annual corrosion reports of all three military departments.

- The Army and the Navy reports included recommendations pertaining to the CPC efforts of their respective departments.
- The Air Force’s annual report does not include recommendations pertaining to the CPC efforts of the department.
- All of the military departments identified some, but not all, of the funding necessary to perform the duties of the corrosion control and prevention executive.¹⁵

¹⁵ In our review of DOD’s FY 2012 corrosion report, we recommended that the military departments include in their annual reports the required information on funding levels necessary to carry out all duties of the corrosion control and prevention executive. See GAO-11-490R.

Objective 1 – Extent report included mandated elements

DOD’s corrosion report included three of six mandated elements (cont.)

Army Report

Recommendations pertaining to the CPC efforts of the Army

- The Army’s report contains recommendations that the Army corrosion control and prevention executive has made to various Army entities to address corrosion issues. For example:
 - Alternatives to using cancer-causing agents, such as hexavalent chromium and cadmium coatings, which combat corrosion, need to be proliferated Army-wide.
 - To address a unique corrosion issue on UH-60 Black Hawk helicopter tail-rotor quadrants, precautionary re-balancing of the tail-rotors was recommended to an Army Reserve National Guard Aviation unit.

Funding required to perform the duties of the corrosion control and prevention executive

- The report identifies some of the funding requirements to perform some of the corrosion control and prevention executive’s duties as the Army’s principle point of contact to DOD’s Director, Corrosion Policy and Oversight, and to develop the Army’s annual report on corrosion.
- The Army’s report does not include the funding required for all of the duties of the corrosion control and prevention executive because, according to Army officials, the legislative language does not clearly define these duties.

Objective 1 – Extent report included mandated elements

DOD’s corrosion report included three of six mandated elements (cont.)

Navy Report

Recommendations pertaining to the CPC efforts of the Navy

- The Navy’s report contains recommendations in its Executive Summary, such as
 - Increasing the level of funding for CPC programs and projects, which could provide an opportunity to realize significant cost avoidance and potential budgetary savings.
 - Advocating for a DOD policy requiring CPC to be addressed in the early stages of the acquisition process.

Funding required to perform the duties of the corrosion control and prevention executive

- According to Navy officials, the Navy’s corrosion-related funding requirements and its report do not include the funding required for all of the duties of the corrosion control and prevention executive. However, the Navy’s annual report for 2011 reported that the corrosion control and prevention executive had requested \$973,000 to perform his duties in FY 2012.
- Like the Army officials, the Navy officials believe the legislative language does not clearly define the duties of the corrosion control and prevention executive. As a result, the Navy is having difficulty identifying all of its corrosion control and prevention executive’s duties.

Objective 1 – Extent report included mandated elements

DOD’s corrosion report included three of six mandated elements (cont.)

Air Force Report

Recommendations pertaining to the CPC efforts of the Air Force

- Although the Air Force included recommendations in its 2010 annual report, its 2011 report does not include recommendations. This is because of internal reorganization that resulted in the loss of Air Force corrosion expertise, according to the Air Force official who coordinated with CPO at the time of our review.¹⁶ Further, this official said that at the time of the report the Air Force did not have a good grasp on its overall corrosion issues, and therefore it was not in a position to make recommendations.
- By not including recommendations in its 2011 annual corrosion report, the Air Force has not provided Congress the information it needs to determine if the Air Force is taking steps to effectively mitigate corrosion.
- Subsequent to issuing its annual report, the Air Force developed a long-term corrosion strategic plan, in June 2012, that contains several goals that may aid in addressing some of its corrosion issues.¹⁷

¹⁶ The Air Force’s corrosion control and prevention executive position was vacant from late 2010 through the time the Air Force issued its 2011 annual report. The Air Force filled the position in April 2012.

¹⁷ The Air Force developed this strategic plan as a result of the direction in House Report 112-78, accompanying H.R. 1540, a bill for the fiscal year 2012 National Defense Authorization Act.

Objective 1 – Extent report included mandated elements

DOD’s corrosion report included three of six mandated elements (cont.)

Air Force Report (cont.)

Funding required to perform the duties of the corrosion control and prevention executive

- The report identifies some funding for tactical corrosion actions/activities by aircraft and weapon system.
- The Air Force official stated that the department cannot identify all the funding required to perform the duties of the corrosion control and prevention executive because the position was vacant from late 2010 until late April 2012. Also, the Air Force shares the concern of the Army and Navy regarding the lack of clarity in the legislative language defining the duties of the corrosion control and prevention executive.

Objective 1 – Extent report included mandated elements

DOD corrosion report did not include two of six mandated elements

DOD's corrosion report did not include the funds requested in its budget compared to the funding requirements, and it did not include the funding request compared to the funding requirements by project and activity as mandated by law.¹⁸

4. The funds requested in the budget compared to the funding requirements for the fiscal year covered by the report (FY 2013) and the preceding fiscal year (FY 2012) – Not Included.

- In the FY 2013 corrosion budget report, DOD did not include the funding requirements compared to the funding request for this mandated element. The officials stated that the data for FY 2013 are not included because, in keeping with the decision to report actual funding, DOD did not know what its funding for FY 2013 would be at the time it submitted its report.
- In the FY 2013 corrosion budget report, DOD did not provide the funding requirements for FY 2012, but instead reported its actual funding compared to the funding request. DOD officials stated that the decision to report actual funding as opposed to the funding requirements for FY 2012 was a senior leadership decision.

¹⁸ 10 USC § 2228(e)(1)(C) and 10 USC § 2228(e)(1)(E).

Objective 1 – Extent report included mandated elements

DOD corrosion report did not include two of six mandated elements (cont.)

5. The funds requested in the budget compared to the funding requirements for each project or activity for the fiscal year covered by the report (FY 2013) and the preceding fiscal year (FY 2012)¹⁹ – Not Included

- CPO officials stated that they will not be able to meet this requirement for the year covered by the report, because they do not know what projects will actually be submitted by the military departments until after they submit their budget report. We acknowledge that, due to its timeline for accepting projects, DOD cannot provide these data for the year covered by the report.
- CPO officials could not explain why this information was not included for the prior year. They stated that the information is available and could be included. They added that it may have been omitted either to make the report more concise or because CPO does not know the final amount of funding provided by the military departments for each project.
- Without the comparison of funding requirements to the funding request for the year of the report and the prior fiscal year, as well as the breakdown by project and activity for the prior fiscal year, Congress may not have all of the data it needs to exercise oversight and make well-informed decisions regarding CPC funding.

¹⁹ DOD did not include these data in last year's corrosion report and this was the subject of one of our recommendations. Therefore, we are not making another recommendation this year. See GAO-11-490R.

Objective 1 – Extent report included mandated elements

One of the six mandated elements was not applicable this year

- 6. An explanation if the funding requirements are not fully funded in the budget – Not Applicable.** DOD's corrosion report contains an explanation for why the requirements are not fully funded in the budget request.²⁰ However, as reported by CPO officials, the funding requirements are fully funded in the budget request for FY 2013. Therefore, no explanation is necessary.

²⁰ The explanation that DOD provides is that global commitments, constrained budgets, and the valid requirements of other programs may preclude fully funding DOD's CPC requirements.

Objective 2 – Extent funding request meets requirements

According to officials, the funding request meets requirements for FY 2013

- CPO officials stated that both the funding requirements and funding request for CPC in FY 2013 are \$9.1 million; therefore, the request meets the requirements. As previously stated, DOD senior leadership decided to align the funding requirements with the President's budget request in FY 2013. This resulted in funding requirements considerably lower than in past years (see table 1).
- For the past four years, DOD has identified a budget shortfall, because its funding requirements exceeded its funding request. However, this year DOD did not report a shortfall.

Table 1: DOD's Reported CPC Funding Requirements for Activities and Preliminary Project Proposals, Budget Requests, and Budget Shortfalls, Fiscal Years 2009 to 2013 (Dollars in Millions)

Fiscal Year	Activity Requirements	Preliminary project proposal requirements	Sum of activities and preliminary project proposals ^a	CPC budget request	Reported budget shortfall ^a
2009	3.4	28.5	32.0	14.2	17.8
2010	6.2	21.5	27.7	13.1	14.5
2011	6.5	40.6	47.0	12.0	35.1
2012	8.3	34.9	43.2	11.1	32.1
2013	4.6	4.5	9.1	9.1	0

Source: GAO analysis of DOD data.

^a Totals for a fiscal year may not add due to rounding. The reported budget shortfall is the total estimated CPC funding requirements for activities and preliminary project proposals minus the CPC budget request.

Objective 3 – Potential Cost Avoidance

Cost avoidance not calculated for fiscal year 2013

In the past, we calculated the cost avoidance DOD could achieve with its budget request by taking the requests for both projects and activities and multiplying those amounts by the respective ROIs reported by DOD.

- The military departments have made progress in validating ROIs over the past two years. The *DOD Corrosion Prevention and Mitigation Strategic Plan*²¹ states that a projected ROI must be included when a project is submitted, and that a follow-on review including a validated ROI should be submitted about 5-6 years after the project is funded.
- We reported in 2010 that the military departments had completed the required ROI validations for 10 of 28 projects funded in FY 2005.²²
- As of May 2012, the military departments have completed the required ROI validations for 25 of 28 projects funded in FY 2005, and provided over 35 validated ROIs in total.²³

²¹ Department of Defense, *Department of Defense Corrosion Prevention and Control Strategic Plan* (Washington, D.C.: 2011).

²² GAO, *Defense Management: DOD Has a Rigorous Process to Select Corrosion Prevention Projects But Would Benefit from Clearer Guidance and Validation of Returns on Investments*, GAO-11-84 (Washington, D.C.: Dec. 8, 2010).

²³ Four of the 25 validations from FY 2005 resulted in an unknown ROI. The 35 total validated ROIs are for funded projects ranging from fiscal years 2005-2008.

Objective 3 – Potential cost avoidance

Cost avoidance not calculated for fiscal year 2013 (cont.)

- DOD reported that its average projected ROI for projects is in excess of 14 to 1, and its estimated ROI for activities is 2 to 1. However, this year we did not calculate a cost avoidance based on CPO's funding request and its average projected ROI as we have done in the past because the analysis DOD provided did not support the average ROI for projects in excess of 14 to 1 cited in its report.
- The analysis that DOD provided contains only the projected ROIs and does not contain the more up-to-date validated ROIs.
- Without the analysis to support the ROI cited in DOD's report, Congress cannot be assured that the ROI is accurate.²⁴
- GAO guidance on cost-estimating states that cost estimates should be updated periodically with actual data as they become available.²⁵ Cost estimates tend to become more accurate as actual costs replace earlier estimates. For this reason it is important to update cost estimates with actual costs, so that management has the best information available for making informed decisions.
- We did not calculate a cost avoidance that DOD may potentially miss by not fully funding its requirements, because the requirements are the same as the request, according to officials.

²⁴ The Senate Armed Services Committee has reported legislation that would require DOD to include available data on validated ROIs in future DOD corrosion reports. S. 3254, § 331.

²⁵ GAO-09-3SP.

Conclusions

-
- DOD included some, but not all, of the information in its FY 2013 corrosion budget report to Congress that is mandated by Section 2228(e) of Title 10, as amended. For example, DOD's report did include the annual corrosion reports of the military departments attached in an annex. However, the report did not include the funds requested in the budget compared to the funding requirements for the fiscal year covered by the report and the preceding fiscal year. Additionally, the analysis and documentation that DOD provided did not support how it determined its FY 2013 funding requirements.
 - Unlike in prior years, when DOD only reported on projected ROIs for corrosion projects, the military departments are now validating ROIs, which provides DOD with more up-to-date data for its corrosion report. However, the analysis DOD provided did not support the ROI for projects in excess of 14 to 1 cited in its report and did not include the most up-to-date information.
 - Without complete and detailed information, Congress may be limited in its efforts to provide oversight and make well-informed decisions about whether DOD's funding of the CPC program will enable the Department to effectively address corrosion prevention and mitigation.

Recommendations for Executive Action

To ensure that Congress has the accurate and comprehensive information it needs to exercise its oversight responsibilities, we recommend for FY 2013 and beyond that the Secretary of Defense direct the Under Secretary of Defense for Acquisition, Technology and Logistics to take the following three actions:

- Provide in the annual corrosion budget report to Congress a more detailed explanation of the development of DOD's funding requirements.
- Include in the annual corrosion budget report to Congress the funds requested in DOD's budget compared to the funding requirements for the fiscal year covered by the report and the preceding fiscal year.
- Provide in the annual corrosion budget report to Congress an explanation of DOD's ROI methodology and analysis, including both projected and, to the extent available, validated ROIs.

Related GAO Products

-
- *Defense Management: The Department of Defense's Fiscal Year 2012 Corrosion Prevention and Control Budget Request.* GAO-11-490R. Washington, D.C.: April 13, 2011.
 - *Opportunities to Reduce Potential Duplication in Government Programs, Save Tax Dollars, and Enhance Revenue.* GAO-11-318SP. Washington, D.C.: March 1, 2011.
 - *Defense Management: DOD Needs to Monitor and Assess Corrective Actions Resulting from Its Corrosion Study of the F-35 Joint Strike Fighter.* GAO-11-171R. Washington, D.C.: December 16, 2010.
 - *Defense Management: DOD Has a Rigorous Process to Select Corrosion Prevention Projects, but Would Benefit from Clearer Guidance and Validation of Returns on Investment.* GAO-11-84. Washington, D.C.: December 8, 2010.
 - *Defense Management: Observations on the Department of Defense's Fiscal Year 2011 Budget Request for Corrosion Prevention and Control.* GAO-10-607R. Washington, D.C.: April 15, 2010.
 - *Defense Management: Observations on Department of Defense and Military Service Fiscal Year 2011 Requirements for Corrosion Prevention and Control.* GAO-10-608R. Washington, D.C.: April 15, 2010.
 - *Defense Management: Observations on DOD's Fiscal Year 2010 Budget Request for Corrosion Prevention and Control.* GAO-09-732R. Washington, D.C.: June 1, 2009.
-

Related GAO Products (cont.)

- *Defense Management: Observations on DOD's Analysis of Options for Improving Corrosion Prevention and Control through Earlier Planning in the Requirements and Acquisition Processes.* GAO-09-694R. Washington, D.C.: May 29, 2009.
- *Defense Management: Observations on DOD's FY 2009 Budget Request for Corrosion Prevention and Control.* GAO-08-663R. Washington, D.C.: April 15, 2008.
- *Defense Management: High-Level Leadership Commitment and Actions Are Needed to Address Corrosion Issues.* GAO-07-618. Washington, D.C.: April 30, 2007.
- *Defense Management: Additional Measures to Reduce Corrosion of Prepositioned Military Assets Could Achieve Cost Savings.* GAO-06-709. Washington, D.C.: June 14, 2006.
- *Defense Management: Opportunities Exist to Improve Implementation of DOD's Long-Term Corrosion Strategy.* GAO-04-640. Washington, D.C.: June 23, 2004.
- *Defense Management: Opportunities to Reduce Corrosion Costs and Increase Readiness.* GAO-03-753. Washington, D.C.: July 7, 2003.
- *Defense Infrastructure: Changes in Funding Priorities and Strategic Planning Needed to Improve the Condition of Military Facilities.* GAO-03-274. Washington, D.C.: February 19, 2003.

Enclosure II: Comments from the Department of Defense



ACQUISITION,
TECHNOLOGY
AND LOGISTICS

OFFICE OF THE UNDER SECRETARY OF DEFENSE

3000 DEFENSE PENTAGON
WASHINGTON, DC 20301-3000

AUG 27 2012

Ms. Zina D. Merritt
Director, Defense Capabilities and Management
U.S. Government Accountability Office
441 G Street, N.W.
Washington, DC 20548

Dear Ms. Merritt:

This is the Department of Defense (DoD) response to the GAO Draft Report, GAO-12-823R, "DEFENSE MANAGEMENT: The Department of Defense's Annual Corrosion Budget Report Does not Include Some Required Information," dated August 2012 (GAO Code 351704). Detailed comments on the report recommendations are enclosed.

Sincerely,

A handwritten signature in black ink, appearing to read "Dan Dunmire", is written above the typed name.

Daniel J. Dunmire
Director,
DoD Corrosion Policy and Oversight

Enclosure:
As stated

**GAO DRAFT REPORT DATED AUGUST 2012
GAO- 12-823R (GAO CODE 351704)**

**“DEFENSE MANAGEMENT: THE DEPARTMENT OF DEFENSE’S ANNUAL
CORROSION BUDGET REPORT DOES NOT INCLUDE SOME REQUIRED
INFORMATION”**

**DEPARTMENT OF DEFENSE COMMENTS
TO THE GAO RECOMMENDATIONS**

To ensure that Congress has the accurate and comprehensive information it needs to exercise its oversight responsibilities, GAO recommends for FY 2013 and beyond that the Secretary of Defense direct the Under Secretary of Defense for Acquisition, Technology and Logistics to take the following three actions:

RECOMMENDATION 1: Provide in its annual corrosion budget report to Congress more detailed explanation regarding the development of its funding requirements.

DoD RESPONSE: Non-concur. DoD believes that the report as submitted provides the Congress with all of the information it needs to exercise its oversight responsibilities. Budgets for both activities and projects were provided. Activities are being executed in accordance with the *DoD Corrosion Prevention and Mitigation Strategic Plan*, dated February 2011. Projects are being executed based on input from the Military Departments in accordance with an established process that has been characterized by the GAO as “rigorous” in report GAO-11-84 dated December 2010. Any reduction from previous requests is apparent, as is the basis for current requests.

RECOMMENDATION 2: Include in its annual corrosion budget report to Congress the funds requested in the budget compared to the funding requirements for the fiscal year covered by the report and the preceding fiscal year

DoD RESPONSE: Non-concur. The funds requested in the budget are equal to the funding requirement. The funds requested in the budget reflect the required corrosion program funding considering overall DoD needs.

RECOMMENDATION 3: Provide in its annual corrosion budget report to Congress, an explanation of this methodology and the return on investment (ROI) analysis, including both projected and, to the extent available, validated ROIs.

DoD RESPONSE: Non-concur. The methodology used to calculate ROI’s is documented in OMB Circular A-94 and further detailed in the *DoD Corrosion Prevention and Mitigation Strategic Plan*. Page 15 of GAO report 11-490-R (13 April 2011) states, “As in prior years, we did not independently validate the Corrosion Office’s estimated corrosion prevention and control (CPC) activity requirements, project proposals, or estimated ROIs. Instead, we relied on data provided by the Corrosion Office after assessing the general reliability of the data by cross-checking with other data sets and interviewing the officials responsible for the data collection.

We found the data to be sufficiently reliable for the purposes of (1) presenting budget requirements, funding requested, and shortfall data as stated in DOD's FY 2012 corrosion report and (2) calculating potential cost avoidance based on these data and estimated ROI information provided by Corrosion Office officials." This methodology has not changed.

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