INSPECTOR GENERAL
Department of Defense

June 24, 2019

Report No. DODIG-2019-100

Follow-up Evaluation of Corrective Actions Taken in Response to a Prior DoD OIG Audit of the F-35 Lightning II Autonomic Logistics Information System

Classified by: Michael J. Roark, Deputy Inspector General for Evaluations
Derived From:
Dated March 23, 2013
Reason: E.O. 13526, Sec 1.4(a), (d), (e) and (g)
Declassify on: December 31, 2053
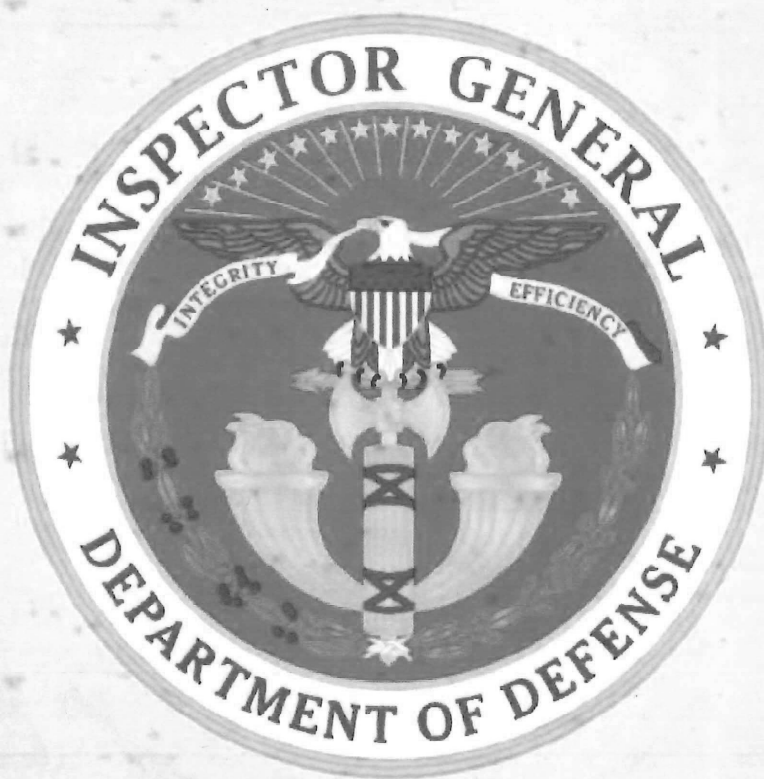Review on: June 30, 2053
Authority: File Series Exemption dated March 30, 2005

INTEGRITY ★ EFFICIENCY ★ ACCOUNTABILITY ★ EXCELLENCE

(U) Results in Brief

(U) Follow-up Evaluation of Corrective Actions Taken in Response to a Prior DoD OIG Audit of the F-35 Lightning II Autonomic Logistics Information System

June 24, 2019

(U) Objective

(U//FOUO) Our objective was to determine whether the actions taken by the Under Secretary of Defense for Acquisition and Sustainment (USD[A&S]) and the F-35 Lightning II Joint Program Office (JPO) addressed the nine recommendations made in the DoD Office of Inspector General Report No. DODIG-2013-031, "Audit of the F-35 Lightning II Autonomic Logistics Information System," (ALIS), December 10, 2012 (hereafter referred to as the December 2012 OIG report).

(U) Background

(U) The F-35 Lightning II Program (the F-35) is a Major Defense Acquisition Category 1D program that is the largest defense acquisition program DoD in history. The F-35 is the next generation strike aircraft weapon systems for the Navy, Air Force, and Marines. The acquisition and development is being managed by the F-35 JPO. The F-35 air system consists of the air vehicle and the autonomic logistics system. The F-35 program seeks to address the needs of the Services by developing three variants of strike fighter aircraft.

(U//FOUO) The ALIS will be co-located with the F-35 air vehicle and will interface with other systems by providing an integrated set of capabilities for operations, maintenance, and support. The ALIS will play a key role in logistic support, mission planning, training, and provide near real-time information improving resource and asset management and visibility between the Services, operational units, depots, and the contractors. In addition, the ALIS will process unclassified to Secret/Special Access Required information. The ALIS is critical to the success of the F-35.

(U//CUI OSD - (b)(1) 1.7e) The December 2012 OIG report found that the F-35 JPO ALIS Integrated Product Team (IPT) did not have the authority and control needed to effectively manage the ALIS. Specifically,

- (U//FOUO) the ALIS was not a separate program, and the ALIS IPT did not have the ability to control the decisions related to the ALIS.

- (U//CUI OSD - (b)(1) 1.7e) there were no contractual requirements to test any of the systems that make up the ALIS.

- (U//FOUO) the ALIS that was being developed and funded did not meet the Services' requirement for deployability.

- (U//CUI OSD - (b)(1) 1.7e) the ALIS IPT did not ensure the effectiveness, efficiency, and management of OSD - (b)(1) 1.7e information maintained and processed in the ALIS.

(U//CUI OSD - (b)(1) 1.7e) As a result, security risks, including risks of unauthorized access to OSD - (b)(1) 1.7e information, were increased; control of cost increases and schedule delays could not be mitigated; and additional cost and time would have been expended to meet F-35 deployability requirements. The December 2012 OIG report made nine recommendations regarding program management, testing of the ALIS, deployability requirements, and security of OSD - (b)(1) 1.7e information.
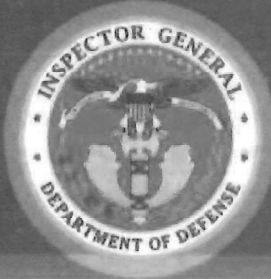
(U) Findings

(U//FOUO) In the follow-up evaluation, we determined that the USD(A&S) and the F-35 JPO took corrective actions to address three of the nine recommendations in the December 2012 OIG report. Specifically, USD(A&S) and the F-35 JPO added ALIS specific contract

(U) Results in Brief

(U) Follow-up Evaluation of Corrective Actions Taken in Response to a Prior Audit of the F-35 Lighting II Autonomic Logistics Information System

(U) Findings (cont'd)

requirements for ALIS development and contract requirements for deployability. In addition, the F-35 JPO obtained a System Threat Assessment Report that addressed current ALIS specific threats.

(U//) We also determined that the USD(A&S) has not fully implemented corrective actions for one recommendation to effectively manage the development of the ALIS. Specifically, the USD(A&S) did not fill the ALIS IPT Lead position with a GS-15/O-6. More importantly, the ALIS IPT Lead was not briefed to all special access programs associated with the F-35 and ALIS. As a result, the ALIS IPT Lead lacks the required authority, control, and program accesses to effectively manage the development of ALIS.

( ) Further, we could not determine if the F-35 JPO had implemented the agreed upon actions for the remaining five recommendations OSD - (b)(1) 1.4 a, d, e and g OSD - (b)(1) 1.4 a, d, e and g OSD - (b)(1) 1.4 a, d, e and g because the JPO did not provide relevant or adequate documentation to close the recommendations.

( ) Because six of the nine recommendations were not sufficiently addressed, we do not have confidence that the F-35 JPO is adequately addressing the risk of unauthorized disclosure of OSD - (b)(1) 1.4 a, d, e and g information. OSD - (b)(1) 1.4 a, d, e and g OSD - (b)(1) 1.4 a, d, e and g

(U) Recommendations

(U) While we are not making new recommendations for this report, we reemphasize the importance of addressing the open recommendations made to the USD(A&S) and the F-35 JPO related to security architecture testing, the

inclusion of the Air Force Office of Special Investigations in the ALIS development process, the use and approval of foreign software, and testing of ALIS in a realistic environment.

(U) Management Comments and Our Response

(U) The F-35 JPO Program Management and Operations Director, responding for the F-35 Program Executive Officer, generally agreed with the findings. However, the F-35 JPO Program Management and Operations Director did not agree that the F-35 JPO did not fully implement corrective actions to effectively manage the development of the ALIS. Specifically, the F-35 JPO Program Management and Operations Director stated that in September 2018, an O-5, now an O-6 select, took over the role as the ALIS IPT Lead and was awaiting program clearances when this report was drafted. We maintain our position that the ALIS IPT Lead could not have effectively managed ALIS without access to all SAPs associated with the F-35 and ALIS. However, because the ALIS IPT Lead was briefed to the SAPs on May 13, 2019, the recommendation is closed.

(U) The F-35 JPO Program Management and Operations Director agreed with the finding regarding gaps in government testing; the inclusion of certifying officials in the approval process; developing and maintaining a list of all foreign developed software as well as documentation of third party testing approvals; requiring the use of a checklist for the approval of high risk foreign software; and testing ALIS in realistic and deployable settings. The F-35 JPO Program Management and Operations Director provided additional documentations with their official management comments. Therefore, the recommendations will remain open and resolved until we have an opportunity to review and analyze the documents provided.

INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
4800 MARK CENTER DRIVE
ALEXANDRIA, VIRGINIA 22350-1500

June 24, 2019

MEMORANDUM FOR UNDER SECRETARY OF DEFENSE FOR ACQUISITION AND
SUSTAINMENT
PROGRAM EXECUTIVE OFFICER F-35

SUBJECT: (U) Follow-up Evaluation of Corrective Actions Taken in Response
to a Prior Audit of the F-35 Lightning II Autonomic Information
System (Report No. DODIG-2019-100)

(U) We are providing this report for review and comment. We conducted this
evaluation in accordance with the Council of the Inspectors General on Integrity and
Efficiency, Quality Standards for Inspections and Evaluations," January 2012.

(U) We considered management comments on a draft of this report when preparing the
final report. Comments from the F-35 Joint Program Office, Director, Program
Management and Operations to Recommendation A addressed all specifics of the
recommendation and conformed to the requirements of DoD Instruction 7650.03. The
recommendation is closed.

(U) DoD Instruction 7650.03 requires that recommendations be resolved promptly.
Comments from the F-35 Joint Program Office Director, Program Management and
Operations to Recommendation B, D1, D3, D4, and D5 addressed some aspects of the
recommendations but require additional time for review or additional supporting
documentation; therefore, the recommendations are open and resolved. We are
requesting the Under Secretary of Defense for Acquisition and Sustainment and the
F-35 Program Executive Officer provide additional supporting documentation for
Recommendations B and D3 by July 31, 2019.

(U) We appreciate the cooperation and assistance received during the evaluation.
Please direct questions to [DoD OIG - (b)(6)] at [DoD OIG - (b)(6)]

Michael J. Roark
Deputy Inspector General
for Evaluations

(U) Contents

(U) Introduction

(U) Objective

(U//FOUO) Our objective was to determine whether the actions taken by the Under Secretary of Defense for Acquisition and Sustainment (USD[A&S]) and the F-35 Lightning II Joint Program Office (JPO) addressed the nine recommendations made in the DoD Office of Inspector General (OIG) Report No. DODIG-2013-031, "Audit of the F-35 Lightning II Autonomic Logistics Information System,"(ALIS) December 10, 2012 (hereafter referred to as the December 2012 OIG report.[1])

(U) See Appendix A for the scope, methodology, and prior coverage related to the evaluation objective. See Appendix B for the status of the December 2012 OIG report recommendations.

(U) Background

(U) F-35 Lightning II

(U) The F-35 Lightning II Program (hereafter referred to as the F-35) is a Major Defense Acquisition Category 1D program that is the largest DoD acquisition program in history. The F-35 is the next generation strike aircraft weapon systems for the Navy, Air Force, and Marines. Eight other nations are partnered with the United States in the development of the F-35: Australia, Canada, Denmark, Italy, the Netherlands, Norway, Turkey, and the United Kingdom. Additionally, Israel, Japan, and the Republic of Korea are foreign military sale customers purchasing the F-35 aircraft, while Belgium and Finland are evaluating whether to purchase the aircraft.

(U) The F-35 air system consists of the air vehicle and the autonomic logistics system. The F-35 program seeks to address the needs of the Services by developing three variants of strike fighter aircraft.

(U) Lockheed Martin Aeronautics (Aero) Company, located in Fort Worth, Texas, is the prime contractor and maintains the Autonomic Logistics Operating Unit (ALOU). Lockheed Martin Global Training and Logistics in Orlando, Florida, is a partner company to Lockheed Martin Aero and is responsible for development of Autonomic Logistics Information System (ALIS).

---

[1] (U) The Under Secretary of Defense for Acquisition, Technology, and Logistics has been disestablished and the Under Secretary of Defense for Acquisition & Sustainment was established based on Deputy Secretary of Defense memorandum dated July 13, 2018.

(U) Autonomic Logistics

(U) Autonomic Logistics is a proactive, knowledge-based, global system that identifies and communicates aircraft status, maintenance, supply, and training actions to support and enhance the F-35 mission. Autonomic Logistics encompasses three essential components:

- (U) a reliable, maintainable, and intelligent aircraft that incorporates Prognostics Health Management technology;

- (U) a technologically-enabled maintainer; and

- (U) an ALIS that incorporates advanced information system technology to provide decision support tools and an effective communication network linking the F-35 with the logistics infrastructure.

(U) Autonomic Logistics will facilitate sortie generation by providing timely, accurate, and usable information at all Service theater, wing, and squadron levels. The F-35 must have the capability of transmitting this data to the ALIS from the aircraft in-flight and on the ground.

(U) Autonomic Logistics Information System

(U//~~FOUO~~) According to the F-35 JPO, the ALIS will play a key role in logistic support, mission planning, and training, providing the near real-time information for the management of resources. Improving resource and asset management and visibility between the Services, operational units, depots, and the contractors will be critical to the success of the F-35 support concept. The ALIS will interface with the F-35 air vehicle and other systems, providing an integrated set of autonomic capabilities for the operations, maintenance, and support. The ALIS is a distributed system with components placed to support operations at the target locations, to include unclassified or classified elements as needed. The ALIS will be co-located with the F-35 air vehicle. At the theater level, the ALIS will assist in immediate air asset allocation. At the wing level, the ALIS will assist with mission support requirements, and at the squadron level, the ALIS will assist with maintenance and support resource allocations. The ALIS will process unclassified to Secret//Special Access Required information.

(U) Autonomic Logistics Operating Unit

(U//~~FOUO~~) There will be a classified ALOU and an unclassified ALOU. The ALOU resides at the top of the ALIS infrastructure and supports communications with and between Government, Commercial, and Lockheed Martin Aero systems. These systems

include the training management system; the Central Point of Entry; the propulsion system contractors; the original equipment manufacturers; the prognostics and health management lab; the failure reporting, analysis, and corrective action system; and specific Lockheed Martin Enterprise Information Technology systems (System Applications and Products, and logistics data manager).

(U) December 2012 OIG Report Summary

(U) On December 10, 2012, the DoD OIG issued Report No. DODIG-2013-031, "Audit of the F-35 Lightning II Autonomic Logistics Information System (ALIS.)" The objective was to evaluate the management of the ALIS. The audit included follow-up on recommendations made in DOD IG Report No. 07-INTEL-05, "Audit of Controls Over Protecting and Releasing Special Program Information to the F-35 Foreign Partners," February 9, 2007.

(U//CUI OSD - (b)(1) 1.7e) The December 2012 OIG report found that the F-35 JPO ALIS Integrated Product Team (IPT) did not have the authority and control needed to effectively manage the ALIS. As a result, security risks, OSD - (b)(1) 1.7e OSD - (b)(1) 1.7e , were increased; control of cost increases and schedule delays could not be mitigated; and additional cost and time would have been expended to meet deployability requirements. The December 2012 OIG report made nine recommendations listed as: A, B, C1-C2, and D1-D5.

(U) Program Management of ALIS

(U//FOUO) The December 2012 OIG report found that the ALIS IPT did not have the authority and control needed to effectively manage the development of the ALIS. The ALIS IPT was not a separate program, and it did not have the ability to control the decisions related to ALIS. As a result, the ALIS IPT did not address the risks associated with the contractor owning a significant part of the ALIS operations. In addition, the ALIS IPT could not monitor or control potential cost growth and schedule slippages in the development of the ALIS.

(U) Testing of the Autonomic Logistics Information System

(U//CUI OSD - (b)(1) 1.7e) The December 2012 OIG report found that there were no contractual requirements to test any of the systems that make up the ALIS. The ALOU and all of the Lockheed Martin Aero back end architecture, which processes government data, were not independently tested to ensure the technical implementation of the security design and to ascertain whether security software and hardware performed properly. In addition, the December 2012 OIG report stated that the F-35 JPO did not own all of the

systems that comprise the ALIS. Therefore, the government had no control over the external systems or the testing. As a result, the F-35 JPO could not ensure the government data maintained and processed in the Autonomic Logistics Global Sustainment was protected.

(U) Deployability Requirements for the Autonomic Logistics Information System

(U//FOUO) The December 2012 OIG report stated that the ALIS that is being developed and funded did not meet the Services' requirement for deployability. The ALIS-specific requirements were not defined in the F-35 System Development and Demonstration contract. As a result, the F-35 JPO and the Services would incur additional cost and time needed to develop the capabilities for a deployable ALIS.

(U) Security of Special Access Program Information Processed in ALIS

(U//CUI OSD - (b)(1) 1.7e) The December 2012 OIG report stated that the F-35 JPO had not been able to assure the effective, efficient, and secure management of OSD - (b)(1) 1.7e information maintained and processed in the ALIS. This deficiency existed for the following reasons.

- (U//FOUO) Security was not taken into consideration early in the development process.
- (U//FOUO) An ALIS-specific System Threat Analysis Report identifying possible threats to the system was not developed.
- (U//FOUO) Foreign software had been used without proper vetting.
- (U//FOUO) Realistic testing had not been performed.

(U//CUI OSD - (b)(1) 1.7e) As a result, the risk that unauthorized personnel could gain access to OSD - (b)(1) 1.7e information had significantly increased.

(U) Review of Internal Controls

(U//FOUO) DoD Instruction 5010.40,[2] "Managers' Internal Control Program Procedures," May 30, 2013, requires DoD organizations to implement a comprehensive system of internal controls that provides reasonable assurance that programs are

---

[2] (U) DoD Instruction 5010.40, "Managers' Internal Control Program Procedures," May 30, 2013.

operating as intended and to evaluate the effectiveness of the controls. We identified internal control weaknesses in the management of the ALIS. Specifically, we could not determine if the F-35 JPO has implemented the agreed upon actions for recommendations related to security architecture testing, the inclusion of Air Force Office of Special Investigations (AFOSI) in the ALIS development process, the use and approval of foreign software, and testing of ALIS in a realistic environment. We will provide a copy of the final report to the senior official responsible for internal controls in the USD(A&S) and the F-35 JPO.

SECRET // OSD - (b)(1) 1.4 a, d, e and g NOFORN

(U) Finding

(U//FOUO) The USD(A&S) and The F-35 JPO Took Steps to Address Contract Deficiencies and ALIS Specific Threat Concerns, But Have Not Addressed Critical Security Shortfalls

(U//FOUO) We determined that the USD(A&S) and the F-35 JPO took corrective actions to address three of the nine recommendations in the December 2012 OIG report. Specifically, USD(A&S) and the F-35 JPO added ALIS-specific contract requirements for ALIS development and contract requirements for deployability. In addition, the F-35 JPO obtained a System Threat Assessment Report that addressed ALIS specific threats.

(U//FOUO) We also determined that the USD(A&S) has not fully implemented corrective actions for one recommendation to effectively manage the development of the ALIS. Specifically, the USD(A&S) did not fill the ALIS IPT Lead position with a GS-15/O-6 with the necessary program accesses to effectively manage the development of the ALIS.

(CUI OSD - (b)(1) 1.4 a, d, e and g) Further, we could not determine if the F-35 JPO has implemented the agreed-upon actions for five of the nine recommendations OSD - (b)(1) 1.4 a, d, e and g
OSD - (b)(1) 1.4 a, d, e and g

. We could not determine if the F-35 JPO has implemented these agreed upon actions because the JPO did not provide relevant or adequate documentation to close the recommendations.

(CUI OSD - (b)(1) 1.4 a, d, e and g) Because six of the nine recommendations were not adequately addressed, we determined the ALIS IPT Lead still lacks the required authority and control needed to effectively manage the development of ALIS. OSD - (b)(1) 1.4 a, d, e and g
OSD - (b)(1) 1.4 a, d, e and g

(U) USD(A&S) and F-35 JPO Management Actions Taken Addressed Three of the Nine Recommendations

(U//FOUO) The USD(A&S) and the F-35 JPO took corrective actions to address three of the nine recommendations. Specifically, the USD(A&S) and the F-35 JPO added ALIS-specific contract requirements for ALIS development and deployability. Two

SECRET // OSD - (b)(1) 1.4 a, d, e and g NOFORN

recommendations addressed contract requirement concerns and one recommendation addressed specific threat information about the ALIS.

(U) We recommended the USD(A&S) and the F-35 JPO:

- (U//FOUO) Review the ALIS Standard Operating Unit (SOU) Version 2 to determine whether it should be classified as a separate Acquisition Category program (Recommendation C.1);

- (U//FOUO) Issue a separate contract for the SOU Version 2 follow-on requirements (Recommendation C.2); and

- (U//FOUO) Obtain a current ALIS-specific System Threat Assessment Report (Recommendation D.2).

(U) ALIS Contract Requirements

(U) The December 2012 OIG report identified that the ALIS SOU Version 2 follow-on requirements were general and did not adequately define deployability. The F-35 JPO provided the 2015 contract Statement of Work which specified requirements for the U.S. Marine Corps which were addressed in Phase 3 Increment 1 and additional requirements for the U.S. Air Force in Phase 3 Increment 2. Also, on January 18, 2019, the F-35 JPO issued a synopsis for the ALIS NEXT re-architecture contract, which will include both new capability development and current software maintenance and sustainment, which if awarded, would be a separate contract. The F-35 JPO has addressed the specific requirements for deployablilty of ALIS; therefore, we are closing Recommendations C1 and C2.

(U) System Threat Analysis Reports

(U//FOUO) The December 2012 OIG report identified that the ALIS is integral to the logistics support, mission planning, training, and health management of the F-35. In order to secure ALIS, the F-35 JPO has to understand the current threats to ALIS. The System Threat Analysis Reports describe those threats. The Defense Intelligence Agency, National Air and Space Intelligence Command developed the System Threat Analysis Reports from 2015-2017and two Validated Online Lifecycle Threat reports in 2018. Our review of these reports found that threats to the ALIS have been identified. Additionally, the most recent June 2018 report has extensive coverage of the ALIS threats. Specifically, the June 2018 report identified future threats to ALIS involving the use of malware to impact ALIS. The report also discussed treats via cross-domain solutions because ALIS must support information exchanges across multiple security domains. In addition, adversaries are interested in methods to bridge the gaps and expand their access. Therefore, we are closing Recommendation D2.

(U) USD(A&S) Elevated the ALIS IPT Lead But Did Not to Ensure Proper Grade and Clearance Access Were Granted

(U) The USD(A&S) has not fully implemented the corrective actions to effectively manage the development of the ALIS. We had recommended that the USD(A&S) designate the ALIS as a separate Major Autonomic Information System program under the Program Executive Officer for the F-35 (Recommendation A.) However, the F-35 JPO did not agree with the recommendation.

(U//FOUO) The December 2012 OIG report identified that the ALIS IPT did not have the authority or control to effectively manage the development of the ALIS. The F-35 was large and very complex and ALIS was buried six layers below the top level in the overall F-35 organization. The December 2012 OIG report concluded the ALIS and related areas such as information system interfaces, testing, requirements, and contract cost and performance would receive closer oversight and more effective management as a separately designated acquisition program under the F-35 Program Executive Officer.

(U) The USD(A&S) partially concurred with the finding, agreeing that the ALIS is a crucial subsystem of the overall F-35 Lightning II Air System. However, the USD(A&S) stated that the air system is managed as a whole and separating out a single part of the air system would adversely affect the integrated manner of the development and deployment. As a result, the F-35 JPO stated it would upgrade the ALIS IPT Lead to a GS-15/O-6 level with direct reporting to the Weapon System Program Manager.

(U) During the 2019 evaluation, the F-35 JPO provided a current organizational chart that has the ALIS IPT in line with the Air Vehicle and reporting directly to the Director of Air Systems Integration. However, the current ALIS IPT Lead is a U.S. Navy Commander/O-5, not an O-6. More importantly, the ALIS IPT Lead was not briefed to all SAPs associated with the F-35 and ALIS. Not having access to the SAPs makes his ability to manage ALIS very difficult. The ALIS IPT Lead stated he has discussions about the classified information within the unclassified boundaries. The ALIS IPT Lead stated that he must rely on others "good faith" to assure him that the classified portions are running smoothly. However, the ALIS IPT Lead has no way of knowing if that information is accurate.

(U) As a result, the USD(A&S) has not fully implemented the corrective actions agreed-upon in the official management response to the December 2012 OIG report to effectively manage the development of the ALIS. The ALIS IPT Lead should be a GS-15/O-6 briefed to all SAPs associated with the F-35 and ALIS. Therefore, Recommendation A will remain open until USD(A&S) assigns an ALIS IPT Lead at the

GS-15/O-6 level with access to all SAPs associated with the F-35 and ALIS in order to effectively manage the development of ALIS.

(U) F-35 JPO Did Not Provide Sufficient Documentation to Address Recommendations

(U// OSD - (b)(1) 1.7e) We could not determine if the F-35 JPO had implemented agreed-upon actions for five of the nine recommendations OSD - (b)(1) 1.7e

OSD - (b)(1) 1.7e

OSD - (b)(1) 1.7e We could not determine whether actions were taken because the documentation provided by the F-35 JPO was not sufficient to close the recommendations.

(U) In the December 2012 OIG report we recommended that the F-35 JPO:

- (U//~~FOUO~~) Modify the contract to include security architecture tests for of all the systems that affect ALIS and any system that processes or maintains government data (Recommendation B);

- (U//~~FOUO~~) Include the Program Security Officer, AFOSI, Air Force and Navy certifying officials in the approval process to ensure SAP requirements are taken into consideration as early as possible (Recommendation D.1);

- (U//~~FOUO~~) Develop and maintain a listing of all foreign developed software, as well as all documentation of third party testing approvals (Recommendation D.3);

- (U) Implement and require the use of either the Navy developed checklist or a comparable checklist for software approval (Recommendation D.4); and

- (U//~~FOUO~~) Test the ALIS in realistic, deployable settings (Recommendation D.5.)

(U// OSD - (b)(1) 1.7e) Lack of Security Architecture Testing

(U//~~FOUO~~) The December 2012 OIG report recommended that the F-35 JPO modify the contract to include security architecture tests for of all the systems that affect ALIS and any system that processes or maintains government data (Recommendation B).

(U// OSD - (b)(1) 1.7e) The documents provided by the F-35 JPO during the 2019 evaluation did not address the recommendation for security architecture tests from the December 2012 OIG report. We could not determine whether security architecture testing had been performed because the documents provided did not detail any tests performed on the security architecture for any of the systems that affect the ALIS.

(U//~~CUI~~ OSD - (b)(1) 1.7e) The December 2012 OIG report identified that there was no contractual requirement to test any of the systems that make up the ALIS. Specifically, the ALOU and all of the Lockheed Martin Aero security software and hardware, which process government data, were not being independently tested to ensure the technical implementation of the security design. In addition, the F-35 JPO did not own all of the systems that comprise the ALIS. Therefore, the government had no control over the external systems or the testing. As a result, the F-35 JPO could not ensure that the government data maintained and processed in the Autonomic Logistics Global Sustainment was protected.

(U//~~CUI~~ OSD - (b)(1) 1.7e) The USD(A&S) responded on behalf of the F-35 JPO and partially concurred with the December 2012 OIG report recommendation. The USD(A&S) stated that as the program matured and the security risks in information technology increased, the program proactively developed and implemented a contract modification to implement improved security controls. Also, all systems that processed classified information at any level would be fully tested and certified. Further the F-35 Program Executive Officer mandated an end-to-end test that would assess not only capability, but full system security of the ALIS.

(U//~~CUI~~ OSD - (b)(1) 1.7e) The F-35 JPO provided five documents during the 2019 evaluation to support the requirement for security architecture tests. However, these documents did not address requirements for security architecture tests.

1. (U) Hardware Component Drawing, Revision C included drawings of various hardware components; however, it did not discuss or show testing of any computer systems.

2. (U) Memorandum Subject "Authorization to Operate with Conditions for the Autonomic Logistics Information System (ALIS) Unclassified (U) and Classified (C) Release v3.x," dated March 5, 2018, provided the authority to operate for the ALIS unclassified and classified release for V.3.X; however, this document did not direct testing for all computer systems.

3. (U) JSF Air System Contract Specification, date: undated and unsigned, listed the requirements for ALIS; however, it did not have contractual requirements to conduct independent testing verification prior to fielding the system.

4. (U) JSF Air System Contract Specification Appendix K-3 Functional Constraints established information security functional requirements; however, it did not mention or require independent testing of this system.

5. (U) ALIS Release 3.0 Software Component Deployment spreadsheet contained multiple tabs that identified software for the ALIS; however it did not identify

any security testing. Overall, the F-35 JPO did not provide certifications of completed tests.

(U//~~CUI~~ OSD - (b)(1) 1.7e) As a result, the F-35 JPO cannot ensure the government data maintained and processed in the Autonomic Logistics Global Sustainment is fully protected. Therefore, Recommendation B will remain open until the F-35 JPO provides documentation of security architecture tests for of all systems that affect ALIS and any system that processes or maintain government data.

(U//~~FOUO~~) The F-35 JPO Lacked Documentation Regarding Coordination with Air Force Office of Special Investigations

(U//~~CUI~~ OSD - (b)(1) 1.7e) The December 2012 OIG report recommended that the F-35 JPO include the Program Security Officer, AFOSI, Air Force, and Navy certifying officials in the approval process to ensure SAP requirements are taken into consideration as early as possible (Recommendation D.1). We were unable to determine whether the F-35 JPO had included AFOSI and Navy officials in the development process to ensure that SAP requirements are taken into consideration as early as possible. The December 2012 OIG report identified that the F-35 JPO and Lockheed Martin Aero were not meeting required information assurance controls by not providing full certification and accreditation packages to AFOSI in a timely manner. AFOSI provides counter · intelligence and security program management for USAF SAPs. Further the December 2012 OIG report stated that a fully functioning and secure ALIS was necessary to protect the SAP information it processed and used to fulfill its mission.

(U) The USD(A&S) responded on behalf of the F-35 JPO and concurred with the December 2012 OIG report recommendation to include AFOSI and Navy officials in the approval process to ensure SAP requirements are taken into consideration as early as possible. The USD(A&S) stated that the F-35 JPO was engaging the appropriate security and certification personnel early in the process and had performed process improvement reviews. According to the USD(A&S), as a result of the reviews, the certification personnel are included earlier in the approval process. Also, the AFOSI, Air Force, and Navy certifying officials had been included in the F-35 design and certification.

(U//~~CUI~~ OSD - (b)(1) 1.7e) The F-35 JPO did not provide any documents to support the inclusion of AFOSI and Navy certifying officials in the approval process to ensure SAP requirements are taken into consideration as early as possible. The F-35 JPO did not provide us with any documentation in response to the November 2018 data request to support the closing of the recommendation, even though they concurred with the recommendation. We contacted the designated AFOSI point of contact identified by the F-35 JPO; however, we did not receive a response to discuss AFOSIs level of involvement.

(U//OSD - (b)(1) 1.7e) Since the F-35 JPO did not provide relevant documentation to support inclusion of AFOSI and Navy certifying officials in the approval process, we could not determine if the F-35 JPO had implemented any of the agreed upon corrective actions. OSD - (b)(1) 1.7e Therefore, Recommendation D1 will remain open until the F-35 JPO provides documentation to support the inclusion of AFOSI and Navy certifying officials in the approval process.

(U//OSD - (b)(1) 1.7e) The F-35 JPO Has Not Maintained a List of Foreign Developed Software

(U//OSD - (b)(1) 1.7e) The December 2012 OIG report recommended that the F-35 JPO develop and maintain a listing of all foreign developed software, as well as all documentation of third party testing approvals (Recommendation D.3). OSD - (b)(1) 1.7e

(OSD - (b)(1) 1.4 a, d, e and g) The December 2012 OIG report determined that foreign software had been used in the ALIS development. OSD - (b)(1) 1.4 a, d, e and g December 2012 OIG report stated that Lockheed Martin Aero, Lockheed Martin Global Training and Logistics, and F-35 JPO officials were unable to provide a list of all foreign developed software or documentation of third party testing approvals after repeated requests.

(U) The USD(A&S) responded on behalf of the F-35 JPO and concurred with the December 2012 OIG report recommendation. The USD(A&S) stated that as part of the process improvement of software security and foreign development reviews, the F-35 JPO had implemented the review processes recommended by the certifying agencies, which included the items mentioned in the recommendation.

(U) During our 2019 evaluation, the F-35 JPO provided a spreadsheet for "ALIS Release 3.0 Software Component Development," that is used to track all software, including foreign developed software. However, we could not identify the country of origin for any of the software during our review because that information was not included on the spreadsheet. In addition, the spreadsheet did not provide any evidence or documentation of third party testing approvals. The F-35 JPO provided an updated

"ALIS Release 3.1 U.S. Only Software Component Deployment" that did not identify foreign developed software.

CUI

(OSD - (b)(1) 1.4 a, d, e and g) Therefore, we are unable to determine if the F-35 JPO has created and maintained a list of foreign developed software used in the ALIS. OSD - (b)(1) 1.4 a, d, e and g OSD - (b)(1) 1.4 a, d, e and g . Therefore, Recommendation D3 will remain open until the F-35 JPO provides a current list of foreign developed software and documentation of third party testing approvals.

(U) The F-35 JPO Has Not Directed Its Staff to Use Checklists to Approve New Software

(U) The December 2012 OIG report recommended that the F-35 JPO implement and require the use of either the Navy developed checklist or a comparable checklist for software approval (Recommendation D.4). We were unable to determine whether the F-35 JPO is using software checklists to approve new software. The F-35 JPO did not provide documentation or guidance requiring the use of an approved software checklists.

(U//FOUO) The December 2012 OIG report stated that counterintelligence officials needed 90-days to review foreign owned software in order to properly vet foreign owned companies. Navy certifying officials created a checklist for software approval to assist with their vetting process. The checklist included the information needed by the certifying officials to vet the foreign owned company and software in an efficient manner. The checklist eliminated the need to request additional information from Lockheed Martin Aero. However, the F-35 JPO did not mandate the use of the checklist.

(U) The F-35 JPO concurred with the December 2012 OIG report recommendation and stated that the F-35 JPO would adopt the AFOSI software request form for software approval as part of the security review Process Improvement. The F-35 JPO stated that it would compare the Navy checklist and the AFOSI request form and assess the appropriate way forward to best support the security of the ALIS system.

(U) On February 7, 2019, the F-35 JPO provided a blank AFOSI software approval request form. However, the F-35 JPO did not provide any formal guidance requiring the use of the AFOSI software approval form. The F-35 JPO did not provide any completed approval or disapproval forms to verification. Additionally, they did not provide any documentation to show the comparative analysis for using the AFOSI versus the Navy checklist as referenced in their response to the December 2012 OIG report.

(U//FOUO) We were unable to determine whether the F-35 JPO was using any software checklists to approve new software. As a result, the F-35 JPO is not able to ensure

vetted software is used in the ALIS development. Therefore, Recommendation D4 will remain open until the F-35 JPO provides records of completed checklist and formal guidance implementing the requirement to use the AFOSI software approval form.

CUI

(CUI) The F-35 JPO Has Not Tested the Classified Portions of the ALIS

(U//FOUO) The December 2012 OIG report recommended that the F-35 JPO test the ALIS in realistic, deployable settings (Recommendation D.5.). However, we were unable to determine whether the F-35 JPO had tested the classified portion of ALIS in a realistic environment. While the F-35 JPO did provide testing results for the F-35 and portions of the ALIS, the F-35 JPO did not provide documentation to support testing of the classified portions of the ALIS in a realistic environment.

CUI

(U/OSD - (b)(1) 1.7e) The December 2012 OIG report stated that we observed testing performed at Patuxent River that was not done in a realistic environment. Specifically, the December 2012 OIG report determiner that the testing was performed on a standalone computer and would not be connected to a network or tested in a realistic, deployed setting. According to the December 2012 OIG report, there were no assurances the SAP information would be protected when the system was deployed in real world conditions because of the lack of realistic testing.

(U) The F-35 Program Executive Officer concurred with the findings in an April 30, 2013, memorandum. The Program Executive Officer stated that the F-35 JPO was planning to exercise the ALIS in more robust operationally relevant environments. The Program Executive Officer also stated that the Integrated Test Force had incorporated ALIS specific testing and that the ALIS had undergone more realistic testing.

(U) On January, 10, 2019, the current ALIS IPT Lead identified four types of tests currently conducted on the F-35 and the ALIS (In plant testing at Lockheed Martin Aero, Operationally Relevant Environment testing, Flight Test, and Operational Site tests.) He explained that the next level of testing is the flight test, for which ALIS is loaded on the flight test SOU, Central Point of Entry, and ALOU for testing. The ALIS IPT Lead stated that the flight testing provides a level of fidelity beyond the Operationally Relevant Environment since actual aircraft are conducting operations using the SOU.

(U//FOUO) However, the ALIS IPT Lead stated that there is no independent testing of the classified portions of the ALIS. Currently, Lockheed Martin Aero is verifying that both the unclassified and classified systems meet the specifications without government oversight verifying the contractors work. The ALIS IPT Lead stated that the Logistical Test and Evaluation group does field assessments which are not validations. The Operational Readiness Environment testing has a classified suite, but it is not

configured yet. The F-35 JPO is performing flight tests, but not on the SOU Classified system. The ALIS IPT Lead stated that Hill Air Force Base will be gaining a testing facility which will have both the classified and unclassified system capabilities, but that will not be until later in 2019.

(U) Therefore, we were unable to determine if the F-35 JPO has tested the classified portion of the ALIS. Portions of the ALIS are being tested in realistic settings, but there are security concerns that have not been addressed by any testing or governmental validation. The IPT Lead and Lead Development Engineer stated that there are plans to test the system in the future, but he also stated that there is no independent testing of the classified portions of ALIS. OSD - (b)(1) 1.7e

Therefore, Recommendation D5 will remain open until the F-35 JPO provides documentation to support testing of the classified portions of the ALIS in a realistic environment.

(U) Conclusion

CUI

OSD - (b)(1) 1.4 a, d, e and g) While the F-35 JPO resolved three of the nine recommendations, six remain open. We could not determine whether the ALIS IPT Lead has the required accesses and authority needed to effectively manage the development of the ALIS. The ALIS IPT Lead is not briefed to all the SAPs associated with the ALIS program, which makes his ability to manage as the ALIS IPT Lead very difficult. The security risk still exists since there is no security architecture testing and third party approvals. Therefore, the F-35 JPO cannot ensure the government data maintained and processed in the Autonomic Logistics Global Sustainment is protected. Without the inclusion of AFOSI there is no assurance that SAP requirements have been addressed in the development process. OSD - (b)(1) 1.4 a, d, e and g

CUI

OSD - (b)(1) 1.4 a, d, e and g) Therefore, there was not adequate assurance the SAP information will be protected when the system is deployed and working in real world conditions connected to other OSD - (b)(1) 1.4 a, d, e and g systems. The documents provided by the F-35 JPO demonstrated that six years later, there were not sufficient documented actions to address several critical OSD - (b)(1) 1.4 a, d, e and g recommendations. Therefore, the risk that unauthorized personnel could gain access to OSD - (b)(1) 1.4 a, d, e and g information remains. OSD - (b)(1) 1.4 a, d, e and g The December 2012 OIG report made recommendations and the F-35 JPO identified corrective actions that if implemented

will address the recommendations; therefore, we are not making any new recommendations but will continue to follow-up on the open recommendations. See Appendix B for the status of recommendations.

(U) Management Comments on the Finding and Our Response

(U) On June 12, 2019, the F-35 JPO Program Management and Operations Director, responding for the F-35 Program Executive Officer, submitted comments regarding actions taken on the recommendations in the December 2012 OIG report.

(U) Management Comments on the Management of ALIS

(U) The F-35 JPO Program Management and Operations Director, responding for the F-35 Program Executive Officer, did not agree that the F-35 JPO has not fully implemented the corrective actions to effectively manage the development of the ALIS. The F-35 JPO Program Management and Operations Director stated that following the 2012 recommendation, a GS-15 was placed in the ALIS IPT Lead billet and had access to all SAPs relevant to ALIS. In addition, in September 2018, an O-5, now an O-6 select, took over the role as the ALIS IPT Lead and was awaiting program clearances when this report was drafted. In order to mitigate any shortfalls while the current ALIS IPT Lead was awaiting program clearance, the former ALIS IPT Lead maintained responsibility for ALIS SAP execution.

(U) Our Response

(U) The findings and conclusions identified in the report were based on observations and analysis conducted throughout the evaluation. The ALIS IPT Lead has responsibility for the life cycle development and sustainment, and integration for all aspects of ALIS including the classified portions of ALIS. However, during the evaluation the ALIS IPT Lead was not briefed to all relevant SAPs. During our evaluation, we were not informed that the prior ALIS IPT Lead had maintained responsibility for ALIS SAP execution. In addition, the prior ALIS IPT Lead was not identified as the point-of-contact to discuss SAP specific issues. The ALIS IPT Lead could not have effectively managed ALIS without access to all SAPs associated with the F-35 and ALIS. The ALIS IPT Lead was finally briefed on May 13, 2019, two days before the release of the draft report. Therefore, we consider this recommendation closed.

(U) Management Comments on the Security Architecture Testing

(U) The F-35 JPO Program Management and Operations Director, responding for the F-35 Program Executive Officer, agreed that there is a gap in government testing of the Lockheed Martin owned systems that interface with ALIS. The F-35 JPO Program Management and Operations Director stated that the F-35 JPO is working to form a partnership with the U.S. Operational Test Team and the contractor red team to conduct

operational tests on contractor internal network with oversight from Operational Test and Evaluation Director. The F-35 program office will share additional information as this process moves forward.

(U) Our Response

(U) As of the June 11, 2019, the F-35 JPO has not addressed the recommendation for security architecture testing from the December 2012 OIG report. Security architecture tests must be conducted for all systems that affect ALIS and any system that processes or maintains government data. Therefore, the recommendation will remain open until evidence of testing is provided.

(U) Management Comments on the Inclusion of Certifying Officials in the Approval Process

(U) The F-35 JPO Program Management and Operations Director, responding for the F-35 Program Executive Officer, agreed that certifying officials need to be included in the approval process to ensure that SAP requirements are taken into consideration. The F-35 JPO Program Management and Operations Director stated that the F-35 JPO has met the requirement. The F-35 Program Management and Operations Director provided a December 12, 2012, memorandum for record documenting the process for approving software that includes the AFOSI/Special Projects as the primary approval authority and the Assessment and Authorization Advisory Group charter listing all members from all three Services, DoD Chief Information Officer, and the United Kingdom.

(U) Our Response

(U) The F-35 JPO Program Management and Operations Director, responding for the F-35 Program Executive Officer, provided additional documentation with his comments. However, the F-35 JPO Program Management and Operations Director did not provide additional documentation to support participation by the Services, DoD Chief Information Officer, and the United Kingdom in the approval process. The recommendation will remain open until we receive additional documentation to support participation by the key members and have an opportunity to review and analyze the documents provided.

(U) Management Comments on Maintaining a Listing of All Foreign Developed Software

(U) The F-35 JPO Program Management and Operations Director, responding for the F-35 Program Executive Officer, agreed that the F-35 JPO maintain a list of all foreign developed software as well as documentation of third party testing approvals. The F-35 JPO provided a memorandum for record to describe the process it uses for the approval of high risk software, which includes foreign national software products. According to the F-35 JPO Program Management and Operations Director, the memorandum

references the AFOSI/Special Programs software request form. In addition, the F-35 JPO provided one example of the approval form that was utilized for foreign software approval in the ALIS software baseline.

(U) Our Response

(U) The F-35 JPO Program Management and Operations Director provided additional documentations with his comments. However, six years after the December 2012 OIG report was issued, the F-35 JPO has not provided a complete list of all foreign developed software and evidence of third party testing approval of the high risk software. Therefore, the recommendation will remain open until we receive a complete list of all foreign developed software and third party testing approval documentation and have an opportunity to review and analyze the documents provided.

(U) Management Comments on Implementing the Use of a Checklists to Approve New Software

(U) The F-35 JPO Program Management and Operations Director, responding for the F-35 Program Executive Officer, agreed to implement and require the use of the AFOSI checklist to approve new software. The F-35 JPO Program Management and Operations Director stated that foreign software included in ALIS is approved using the AFOSI software request form. In addition, the F-35 JPO provided a memorandum for record to describe the process used for the approval of high risk software. The F-35 JPO also provided one example of the approval form used by the F-35 JPO.

(U) Our Response

(U) The F-35 JPO Program Management and Operations Director provided additional documentations with their comments. This recommendation will remain open until we have an opportunity to review and analyze the documents provided.

(U) Management Comments on Testing ALIS in Realistic Settings

(U) The F-35 JPO Program Management and Operations Director, responding for the F-35 Program Executive Officer, agreed with the recommendation to test ALIS in realistic, deployable settings. According to the ALIS IPT Lead, the ALIS operationally relevant environment, which was stood up to provide more realistic testing than flight test alone, was currently only operating on the unclassified system. However, there was independent cyber verification and validation testing performed on both the classified and unclassified systems by the 47th Cyberspace Test Squadron in August of 2017 with validation in August of 2018. The F-35 JPO stated that there are additional classified tests and documents being submitted to the OIG for review.

(U) Our Response

(U) On February 4, 2019, we conducted an unclassified telephone conference with the ALIS IPT Lead and the ALIS lead engineer regarding independent testing of the

classified network. The ALIS lead engineer stated that the operational readiness environment testing had a classified suite; however, it was not configured. He also stated that the F-35 JPO was preforming flight tests, but not on the Standard Operating Unit Classified [SOU-C]. The ALIS lead engineer stated that the F-35 JPO had plans to stand up the unclassified portion and eventually get the classified testing stood up. During the evaluation we were not provided any evidence supporting independent verification and validation testing because the ALIS IPT Lead was not aware of the independent verification and testing.

(U) The F-35 JPO Program Management and Operations Director provided additional documentations with his comments. Therefore, this recommendation will remain open until we have an opportunity to review and analyze the documents provided. See Appendix C for the Management Comments to the draft report.

(U) Appendix A

(U) Scope and Methodology

(U) We conducted this evaluation from November 2018 through May 2019 in accordance with the Council of Inspectors General on Integrity and Efficiency Quality Standards for Inspection and Evaluation. Those standards require that we plan and perform the evaluation to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our evaluation objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our evaluation objectives.

(U//OSD - (b)(1) 1.7e) We reviewed the recommendations in DoD OIG Report No. DODIG-2013-031, "Audit of the F-35 Lightning II Autonomic Logistics Information System," December 10, 2012. The USD(A&S) and F-35 JPO provided three memorandums, which described how they planned to implement the recommendations from the December 2012 OIG report. For example, in a 2013 memorandum, the USD(A&S) and F-35 JPO identified 41 documents they believed would address the recommendations. We requested the F-35 JPO provide all 41 documents or provide current documents where applicable. The F-35 JPO did not provide 25 of the 41 documents requested or newer documents that would address the recommendations.

(U) We conducted a site visit at the F-35 JPO, Arlington, Virginia. We met with personnel from the Office of the USD(A&S). Additionally, we met with the F-35 JPO IPT and F-35 JPO engineers responsible for testing and evaluations of the F-35 Lightning II.

(U//FOUO) We reviewed contract documentation and modifications to the System Development and Demonstration Contract N00019-02-C-3002, Concept of Operations for the F-35. We reviewed and evaluated documentation from 2011 to 2018 covering the program organization, build plans, review board minutes, various contracting documents, and testing reports, charts and slides. We also reviewed the Defense Intelligence Agency, National Air and Space Intelligence Command, System Threat Assessment Reports from August 2015 through December 2017 and Validated Online Lifecycle Threat Reports from June and July 2018. Other documentation reviewed included ALIS hardware component drawings and specifications.

(U//FOUO) We evaluated F-35 JPO compliance with DoD Directive 5000.01, "The Defense Acquisition System" and DoD Instruction 5000.02, "Operation of the Defense Acquisition System."

(U) Use of Computer-Processed Data

(U) We did not use computer-processed data to perform this evaluation.

SECRET //

(U) Prior Coverage

(U) During the last five years, the Government Accountability Office (GAO) and the DoD OIG issued five reports discussing the F-35 ALIS and testing. Unrestricted GAO reports can be accessed at http://www.gao.gov. Unrestricted DoD OIG reports can be accessed at http://www.dodig.mil/reports.html/.

(U) GAO

(U) Report No. GAO-17-351: F-35 JOINT STRIKE FIGHTER DOD Needs to Complete Developmental Testing Before Making Significant New Investments, April 24, 2017

> (U) ALIS continues to lack required capabilities; for instance, engine parts information is not included in the current version of ALIS, although it is expected to be completed in the spring of 2017. In 2016, officials began testing ALIS in an operational environment which has led to some improvements. However, capabilities, including the prognostics health management downlink, have been deferred to follow-on modernization. In 2016, officials acknowledged compounding development delays and restructured the development schedule for ALIS. The new schedule shows that some capabilities that were planned in the earlier versions of ALIS will now be deferred to later versions. In April 2016, GAO reported that F-35 pilots and maintainers identified potential functionality risks to ALIS and that DOD lacked a plan to address these risks as key milestone dates approached, which could result in operational and schedule risks.

(U) Report No. GAO-16-439: F-35 Sustainment: DoD Needs a Plan to Address Risks Related to Its Central Logistics System, April 14, 2016.

> (U) F-35 pilots and maintainers identified potential functionality risks to the ALIS, and DoD lacks a plan to address these risks as key milestone dates approach. GAO recommended, among other things, that DoD develop a plan to address ALIS risks.

(U) Report No. GAO-16-489T: F-35 JOINT STRIKE FIGHTER Preliminary Observations on Program Progress, March 23, 2016.

> (U) ALIS is a complex system of systems that supports operations, mission planning, supply-chain management, maintenance, and other processes. In the past, GAO reported that ALIS software has not been delivered on time and has not functioned as expected when it is delivered.

(U) Report No. GAO-14-322 F-35 JOINT STRIKE FIGHTER Problems Completing Software Testing May Hinder Delivery of Expected Warfighting Capabilities, March 24, 2014.

(U) While the F-35 program made progress addressing some key technical risks in 2013, it continued to encounter slower than expected progress in developing the ALIS. Over time, GAO reported on four areas of technical and structural risk that the program identified during flight, ground, and lab testing that if not addressed, could result in substantially degraded capabilities and mission effectiveness.

(U) DoD OIG

(U) Report No. DODIG-2013-031, "Audit of the F-35 Lightning II Autonomic Logistics Information System," December 10, 2012.

(U) The F-35 JPO ALIS IPT did not have the authority and control needed to effectively manage the ALIS. As a result, security risks, to include risks to unauthorized access to SAP information, were increased; control of cost increases and schedule delays cannot be mitigated; and additional cost and time would have been expended to meet deployability requirements.

(U) Appendix B

(U) Status of Prior DoD OIG Recommendations

(U) The December 2012 OIG report made two recommendations to the USD(A&S) and seven to the F-35 JPO. As of May 2019, six recommendations were open and three were closed.

(U) The recommendations are broken out into the responsible DoD Component head: the USD(A&S) and the F-35 JPO. The following table identifies each of the nine recommendations and their current status.

(U) DoD Component Head	(U) Recommendation Number and Reason Recommendation Is Open	(U) Status
(U) USD(A&S)	(U) A. The USD(A&S) designate the ALIS as a separate Major Automatic Information System program under the Program Executive Officer for the F-35. (U) The ALIS IPT Lead was briefed to all programs associated with ALIS on May 13, 2019.	(U) Closed
(U) USD(A&S)	(U//FOUO) C-1. We recommend that the USD(A&S)s review the ALIS SOU Version 2 to determine whether it should be classified as a separate Acquisition Category program.	(U) Closed
(U) F-35 JPO	(U//OSD - (b)(1) 1.7e) B. We recommend that the F-35 JPO modify the contract to include security architecture tests for of all the systems that affect ALIS and any system that processes or maintains government data. CUI (U//OSD - (b)(1) 1.7e) The F-35 JPO did not provide a copy of the contract modification requiring security architecture tests for all the systems that affect ALIS. The recommendation will remain open until such documentation is provided.	(U) Open
(U) F-35 JPO	(U//FOUO) C-2. We recommend that the F-35 JPO issue a separate contract for the Standard Operating Unit Version 2 follow-on	(U) Closed

	requirements.	
(U) F-35 JPO	(U//~~FOUO~~) D-1. Include the Program Security Officer, AFOSI, Air Force and Navy certifying officials in the approval process to ensure SAP requirements are taken into consideration as early as possible. ~~CUI~~ (U//~~OSD - (b)(1) 1.7e~~) The F-35 JPO did not provide relevant documentation to support inclusion of AFOSI, Air Force, and Navy certifying officials; we could not determine if the JPO had implemented any agreed upon corrective actions. The recommendation will remain open until such documentation is provided.	(U) Open
(U) F-35 JPO	(U//~~FOUO~~) D-2. Obtain current ALIS specific System Threat Assessment Report.	(U) Closed
(U) F-35 JPO	(U//~~FOUO~~) D-3. Develop and maintain a listing of all foreign developed software, as well as all documentation of third party testing approvals. (U//~~FOUO~~) The F-35 JPO did not provide a current list of all foreign developed software or proof of third party testing. The recommendation will remain open until such documentation is provided.	(U) Open
(U) F-35 JPO	(U) D-4. Implement and require the use of either the Navy developed checklist or a comparable checklist for software approval. (U) The F-35 JPO did not provide the checklist or implementing guidance. The recommendation will remain open until such documentation is provided.	(U) Open
(U) F-35 JPO	(U//~~FOUO~~) D-5. Test the ALIS in realistic, deployable settings. (U) The F-35 JPO did not test the classified system in a realistic environment. The recommendation will remain open until such documentation is provided.	(U) Open

(U) Management Comments

(U) F-35 Joint Program Office

F-35 LIGHTNING II JOINT PROGRAM OFFICE
200 12th Street South, Suite 600
Arlington, Virginia 22202-5402

12 Jun 2019

MEMORANDUM FOR DEPUTY INSPECTOR GENERAL FOR EVALUATIONS

SUBJECT: Response to the DoDIG Draft Report, "Follow-up Evaluation of Corrective Actions Taken in Response to a Prior DoD OIG Audit of the F-35 Lightning II Autonomic Logistics Information System" (Project No. D2019-DISPA3-0053.000)

As requested, F-35 JPO is providing a response to the general content and recommendations contained in the subject report.

RECOMMENDATION A: Recommendation A will remain open until USD (A&S) assigns an ALIS IPT Lead at the GS-15/O-6 level with access to all SAPs associated with the F-35 and ALIS in order to effectively manage the development of ALIS.

JPO RESPONSE: Non-Concur. Following the 2012 recommendation, the ALIS IPT lead was elevated in the F-35 organizational structure and a GS-15 was placed in the billet beginning in October 2013. This individual had access to all special access programs relevant to ALIS. In September 2018, an O-5 took over the role as the ALIS IPT Lead and was awaiting program clearances when this report was drafted. The ALIS IPT Lead is now an O-6 select and has access to all relevant program clearances. To mitigate any shortfalls while the current ALIS IPT lead was awaiting program clearance, the former ALIS IPT Lead remained as part of the ALIS IPT and maintained responsibility for ALIS special access program execution. It is the position of the F-35 JPO that this recommendation has been fulfilled.

RECOMMENDATION B: Modify the contract to include security architecture tests for all of the systems that affect ALIS and any system that processes or maintains government data.

JPO RESPONSE: Concur. The F-35 program office concurs that there is currently a gap in government testing of the Lockheed Martin owned systems that interface with ALIS. The topic was discussed at the F-35 Cyber Working Group with Lockheed Martin in May 2019. The program office is working with Lockheed Martin to form a partnership between the US Operational Test Team (UOTT) and the Lockheed Martin red team to conduct operational tests on the Lockheed Martin internal network with oversight from DOT&E. The F-35 program office will share additional information as this process moves forward.

RECOMMENDATION D1: Include the Program Security Officer, AFOSI, Air Force and Navy Certifying officials in the approval process to ensure special access program requirements are taken into consideration as soon as possible.

JPO RESPONSE: Concur. The F-35 has met the requirement to ensure representation from appropriate certifying officials in both the US Air Force and Navy. The attached Memorandum for Record dated 13 December, 2012 documents the F-35 process for approving software that includes the Air Force Office of Special Investigations / Special Projects (AFOSI/PJ) as the primary approval authority. The F-35 JPO is the chair of the F-35 Assessment and Authorization Advisory Group (AAAG) which includes members from all three services, DoD CIO, and the

IIK. Section 2 of the AAAG charter lists all of the participant groups. It is the position of the F-35 JPO that recommendation D should be closed as fulfilled.

RECOMMENDATION D3: Develop and maintain a listing of all foreign developed software as well as all documentation of third party testing approvals.

JPO RESPONSE: Concur. The attached Memorandum for Record (MFR) "F-35 Program Process for Submittal to AFOSI/PJ of High Risk Software as Defined in JAFAN 6/3" describes the process that the F-35 enterprise uses for the approval of high risk software, which includes foreign national software products. The MFR references the AFOSI/PJ software request form. The attached example from November 2018 shows one example of the approval form being utilized by the F-35 Program Office for foreign software approval in the ALIS software baseline.
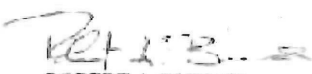
RECOMMENDATION D4: Implement and require the use of either the Navy developed checklist or a comparable checklist for software approval.

JPO RESPONSE: Concur. Foreign software inclusion in ALIS is specifically approved via the AFOSI/PJ Software Request Form. The attached Memorandum for Record (MFR) "F-35 Program Process for Submittal to AFOSI/PJ of High Risk Software as Defined in JAFAN 6/3" describes the process that the F-35 enterprise uses for the approval of high risk software. The attached example from November 2018 shows one example of the approval form being utilized by the F-35 Program Office.

RECOMMENDATION D5: Test ALIS in realistic, deployable settings.

JPO RESPONSE: Concur. The report stated that the IPT Lead stated "that there is no independent testing of the classified portions of ALIS." The report does not adequately capture the context of that conversation. The IPT Lead stated that the ALIS Operationally Relevant Environment (ORE), which was stood up to provide more realistic testing than flight test alone, was only currently operating the unclassified system. There is independent cyber IV&V testing performed on both the classified and unclassified systems by the 47th Cyberspace Test Squadron. The 46th Cyberspace Test Squadron performed a full ALIS test in August of 2017 with PO&M validation in August of 2018. The 47th CTS is scheduled to perform a full IV&V of ALIS for ALIS build 3.5 in July 2019. Additionally, the Joint Operational Test Team (JOTT) conducted ALIS Cooperative Vulnerability and Penetration Assessments (CVPA) and Adversarial Assessments. The CVPAs were conducted in October 2016, August 2017, and August 2018. The AAs were conducted in December 2016, September 2017, and October 2018. The JOTT test reports have been sent via classified networks.

Additionally, my team has accomplished a full security review of the document and concurs with the document as currently classified. My point of contact for this memorandum is DoD OIG - (b)(6) DoD OIG - (b)(6).

ROBERT A BURNES
Director, Program Management & Operations

Attachments:
A - Memorandum for Record "JSF Program Process for Submittal to AFOSI for High Risk Software as Defined in ACAN 6xx", December 2012
B - Memorandum for JSF Program Security Office, SUBJ "Software Approval for Bouncy Castle FIPS 1.0.1 Library", 26 November 2018
C - F-35 Lightning II Program Assessment and Authorization Advisory Group (AAAG) Charter
D - ALIS 3.0 Security Assessment Report, 15 September 2019

(U) Acronyms and Abbreviations

AERO	Aeronautics
AFOSI	Air Force Office of Special Investigations
ALIS	Autonomic Logistics Information System
ALOU	Autonomic Logistics Operating Unit
GAO	Government Accountability Office
IPT	Integrated Product Team
JPO	Joint Program Office
JSF	Joint Strike Fighter
SAP	Special Access Program
SOU	Standard Operating Unit
USD(A&S)	Under Secretary of Defense for Acquisition and Sustainment

Whistleblower Protection
U.S. DEPARTMENT OF DEFENSE

The Whistleblower Protection Ombudsman's role is to educate agency employees about prohibitions on retaliation and employees' rights and remedies available for reprisal. The DoD Hotline Director is the designated ombudsman. For more information, please visit the Whistleblower webpage at www.dodig.mil/Components/Administrative-Investigations/DoD-Hotline/.

For more information about DoD OIG reports or activities, please contact us:

Congressional Liaison
703.604.8324

Media Contact
public.affairs@dodig.mil; 703.604.8324

DoD OIG Mailing Lists
www.dodig.mil/Mailing-Lists/

Twitter
www.twitter.com/DoD_IG
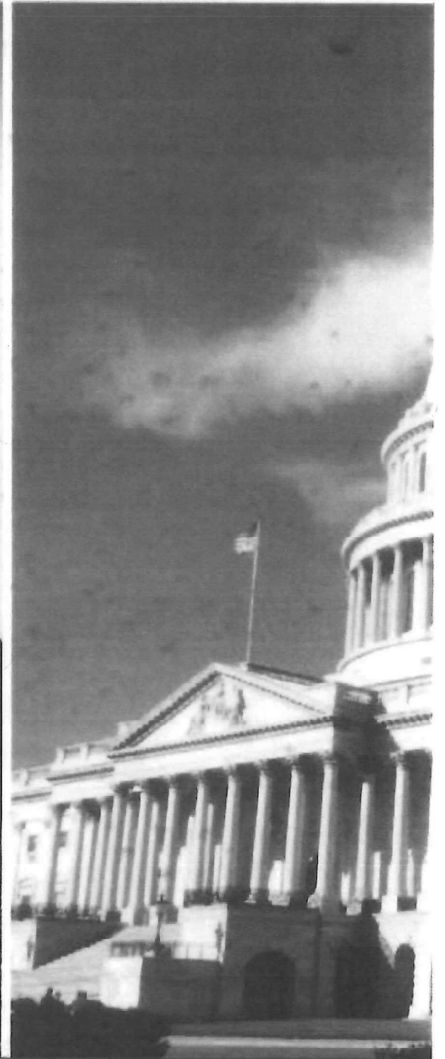
DoD Hotline
www.dodig.mil/hotline

DEPARTMENT OF DEFENSE | OFFICE OF INSPECTOR GENERAL

4800 Mark Center Drive
Alexandria, Virginia 22350-1500
www.dodig.mil
Defense Hotline 1.800.424.9098