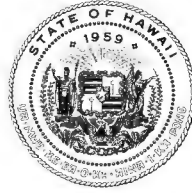


Josh Green, M.D.
GOVERNOR



DOUGLAS MURDOCK
CHIEF INFORMATION
OFFICER

OFFICE OF ENTERPRISE TECHNOLOGY SERVICES

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May 17, 2024

The Honorable Ronald D. Kouchi
President of the Senate
and Members of the Senate
Thirty-Second State Legislature
State Capitol, Room 409
Honolulu, Hawai'i 96813


The Honorable Scott K. Saiki
Speaker and Members of the
House of Representatives
Thirty-Second State Legislature
State Capitol, Room 431
Honolulu, Hawai'i 96813

Aloha Senate President Kouchi, Speaker Saiki, and Members of the Legislature:

Pursuant to HRS section 27-43.6, which requires the Chief Information Officer to submit applicable independent verification and validation (IV&V) reports to the Legislature within ten days of receiving the report, please find attached the report the Office of Enterprise Technology Services received for the State of Hawai'i, Department of Human Services, Systems Modernization Project.

In accordance with HRS section 93-16, this report may be viewed electronically at <http://ets.hawaii.gov> (see "Reports").

Sincerely,


Douglas Murdock (May 17, 2024 10:13 HST)

Douglas Murdock
Chief Information Officer
State of Hawai'i

Attachments (2)



Hawaii Department of Human Services Systems Modernization Project

Final IV&V Status Report
for Reporting Period: April 1 – 30, 2024

Submitted: May 14, 2024

Overview

- [Executive Summary](#)
- [IV&V Findings and Recommendations](#)
- [IV&V Engagement Status](#)
- [Appendices](#)
 - [A – IV&V Criticality Ratings](#)
 - [B – Risk Identification Report](#)
 - [C – Acronyms and Glossary](#)
 - [D – Background Information](#)



Solutions that Matter

The background is a solid blue color. It features several abstract geometric shapes, including squares and rounded rectangles, some of which are outlined in white and others are filled with a lighter shade of blue. These shapes are scattered across the page, with a higher concentration on the left side. The text 'Executive Summary' is centered horizontally and positioned in the lower-left quadrant of the page.

Executive Summary

Executive Summary



In April, the ASI's efforts to implement the Go-to-Green plan and complete BES 1.0 continued. IV&V's observations during this reporting period fall into the areas of testing, development, security, and the overall progression of the schedule:

- The System Integration Testing (SIT) failure rate for Epics ranges from 51% to 83%, with the highest being eligibility client correspondence, at 83%. There are over 800 defects found in SIT, possibly impacting the Project's ability to enter Final Acceptance Testing (FAT).
- Velocity charts (identifying how much work is delivered in each sprint) show that planned work has not been completed in the past five sprints (sprints 28 to 32) due to the need to address defects from SIT and Integration (INT) testing.
- The Independent Security Assessment team has requested 60 documents supporting the System Security Plan (SSP), highlighting the risk of the SSP and supporting documentation not being completed for federal reviews.
- The schedule variances are increasing, with some task completion dates delayed twenty days or more, potentially revealing unexpected complexity and an increased level of effort

The ASI and DHS continue to collaborate as the project moves into a critical stage in May, with FAT for BES 1.0 scheduled to start on May 13th.

Feb	Mar	Apr	Category	IV&V Observations
H	H	H	Project Management	The schedule approved for the Go-to-Green is aggressive. As the team executes to the schedule, there are a growing number of tasks that are not meeting the planned finish dates.

Executive Summary



Feb	Mar	Apr	Category	IV&V Observations
M	M	M	System Design	The ASI returned to the live Sprint Demo format (instead of recording), leading to improved collaboration and refinement of the design for Epic 209.
M	M	M	Configuration and Development	The restructuring of the development teams as part of the Go-to-Green plan appears to be impacting productivity and potentially code quality, with velocity showing growing gaps between planned versus actual work completed and more defects in SIT.
H	H	M	Integration and Interface Management	With the interface test plan now published, IV&V has retired our related 'High' criticality finding #63. A 'Medium' criticality finding has been opened regarding the interface test schedule and the test case coverage (which should include negative and out-of-bounds testing).
H	H	H	Testing	DHS and IV&V are concerned with the number of defects in SIT. In particular, the high defect percentage for eligibility client correspondence (146 failures out of 176 tests) is 83%. This could challenge the ASI's ability to meet the exit criteria for SIT.
H	H	H	Security and Privacy	The Independent Security Assessment has identified incomplete documentation supporting the SSP, which may impact the start date of the BES Pilot.

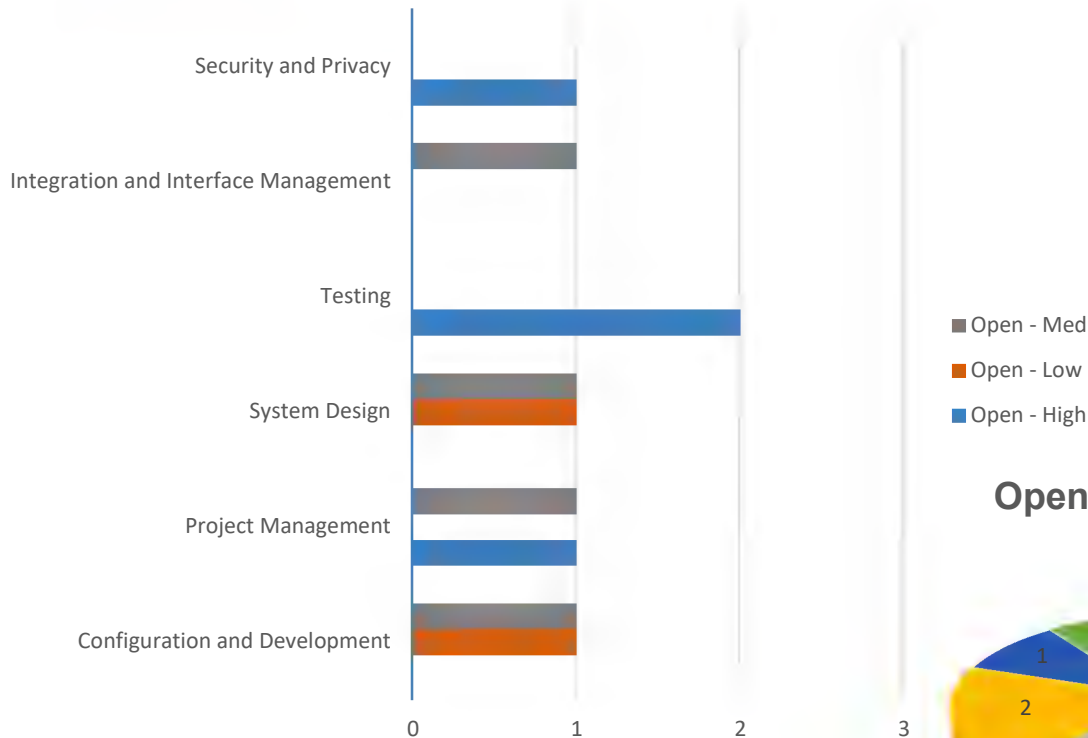
IV&V Findings and Recommendations

IV&V Findings and Recommendations

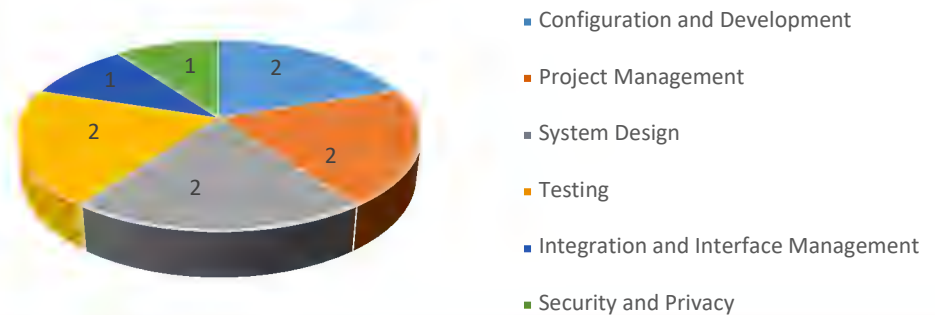


As of the April 2024 reporting period, PCG is tracking 10 open findings (4 risks, 6 issues) and has retired a total of 75 findings. Of the 10 open findings, 4 are High, 4 are Medium, and 2 are Low.

Open Risks & Issues



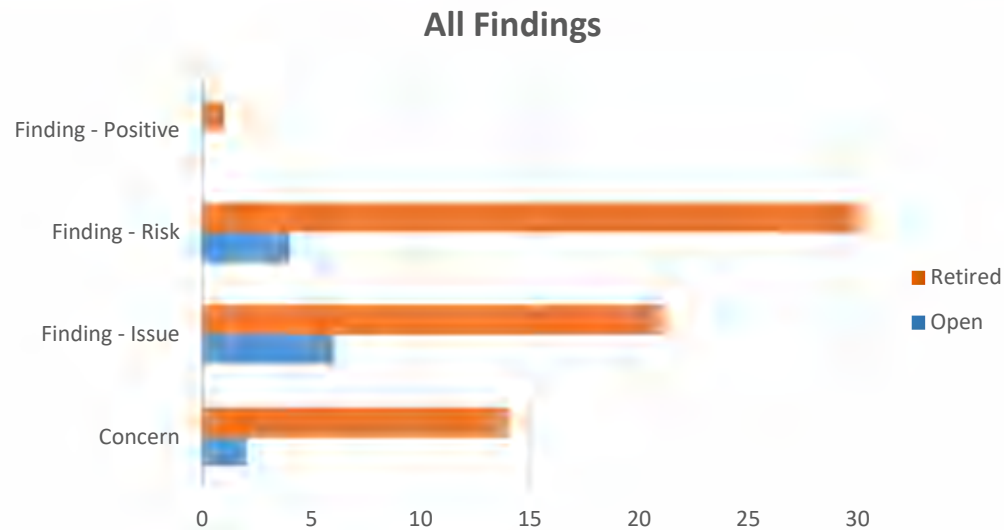
Open Risks & Issues by Category



IV&V Findings and Recommendations



The following figure provides a breakdown of the 87 IV&V findings (positive, risks, issues, concerns) by status (open, retired).



IV&V Findings and Recommendations



Findings Retired During the Reporting Period

#	Finding	Category
63	<p>The lack of early planning and coordination with interface partners may result in schedule delays.</p> <p>BES interfaces have been defined and documented, and the functional interface test plans have been defined. Since all IV&V recommendations have been accomplished, this finding is being retired.</p>	Integration and Interface Management

IV&V Findings and Recommendations



Preliminary Concerns Investigated During the Reporting Period

#	Finding	Category
95	<p>A lack of documented negative tests (e.g., invalid inputs, boundary testing, and deviations from the normal flow) may result in DHS being unable to confirm this testing occurred.</p> <p>Observation: The ASI test lead confirmed that while negative and alternate path testing is not formally documented in SIT, error path testing will occur during ad hoc and end-to-end testing after SIT. The test lead also confirmed that documentation (other than defect logging) will not be generated during ad hoc testing.</p> <p>Significance: Without supporting documentation of planned negative tests and testing outcomes, it will be unclear whether a full range of testing has been completed to ensure the application's overall quality and robustness. This could result in defect leakage into FAT, possibly causing delays to FAT and Go-Live.</p>	Testing

IV&V Findings and Recommendations



Preliminary Concerns Investigated During the Reporting Period

#	Finding	Category
94	<p>The lack of an effective way to validate requirements could lead to unmet user needs and project delays if DHS identifies application requirements that were not met during SIT.</p> <p>Observation: The Requirements Traceability Matrix (RTM) (BI-21) plays a vital role in ensuring the system's compliance with contractual commitments by associating each requirement with passed test case(s). However, the approved project schedule shows the RTM completed on 6/26/24, which falls after the Core SIT exit decision on 5/10/24. The ASI provided the BI-22a System Integrity Review Tool (SIRT) to DHS on April 26, 2024, but withdrew the deliverable due to DHS concerns. This BI-22a deliverable may help DHS validate requirements.</p> <p>Significance: It is unclear to DHS and IV&V how the ASI will trace requirement coverage for SIT completion. DHS may be unable to make an informed decision on SIT exit criteria.</p> <p>This could lead to DHS starting Final Acceptance Testing (FAT) and then realizing that not all requirements have been fully met, resulting in delays.</p>	Requirements Analysis & Management

IV&V Findings and Recommendations



Findings Opened During the Reporting Period

#	Finding	Category
93	<p>Risk – Due to the lack of physical and technical (Transport Layer) testing of the interfaces and data transfer failure, conditions may exist with data format, boundaries, and dependencies. These failures may result in intermittent and hard-to-isolate problems or errors. Medium.</p> <p>Observation: Aside from the functional testing accomplished during epic testing, specific data flow testing is usually part of an interface definition.</p> <p>Significance: This testing is essential before initial deployment to prevent unexpected and difficult-to-resolve issues, such as scrambled or missing data – or the system may have a fault or exception. Since the Project has not established and tested the fault scenarios, we do not know how the system may react.</p>	Integration and Interface Management

Recommendations	Progress
• API interfaces should be tested for failure conditions during connection and transfer operations	Not Started
• API interfaces should be tested for race conditions	Not Started
• FTP and file interfaces should be tested for data and file integrity	Not Started
• Test data fields for system impacts resulting from data that is poorly formatted, out of range, or other unexpected data transmission errors	Not Started
• Interface records and files should be tested for format, length, or other physical formatting errors	Not Started

IV&V Findings and Recommendations



Project Management

#	Key Findings	Criticality Rating
74	<p>Issue – A BES Project schedule based on inaccurate estimations diminishes effective planning and resource management, which could result in late deliverables, cost increases, and a late go-live.</p> <p>Several tasks have been delayed in the project schedule - some (i.e., data conversion) more than 20 days. Additionally, the HANA/BES integration (Epic 209), scheduled to enter SIT on April 15, was in development at the end of the month. IV&V is concerned that under-estimated level of effort on tasks in an aggressive schedule could impact go-live dates.</p>	

Recommendations	Progress
<ul style="list-style-type: none">Monitor, evaluate and revise scheduling estimates for accuracy based on the project teams past performance and resources available to do the remaining work.	In Process
<ul style="list-style-type: none">ASI conducts a Root Cause Analysis (RCA) with DHS and IV&V to determine why the BES Project continues to experience schedule delays.	Not Started
<ul style="list-style-type: none">ASI Project Management works with the development teams to evaluate the accuracy of Velocity and adjust accordingly to reduce risk in the revised BES project schedule.	In Process

IV&V Findings and Recommendations



Project Management


#	Key Findings	Criticality Rating
88	<p>Risk – Implementing a Core Solution for go-live carries inherent risks that may impact overall Project success and reduce user adoption.</p> <p>No material update in this reporting period.</p>	M

Recommendations	Progress
<ul style="list-style-type: none">• Increase OCM efforts to effectively manage user, general public, and legislative expectations for BES version at go-live.	In process
<ul style="list-style-type: none">• Prioritize feedback from users and FNS to ensure the solution meets their core needs and so users are clear on what features they are, and are not, getting.	In process
<ul style="list-style-type: none">• Actively monitor, assess, and address potential challenges throughout the development process including code quality, cutting scope to meet development milestones, insufficient user validation of demonstrated functionality, and fully defined workarounds to accommodate for the missing functionality.	In process
<ul style="list-style-type: none">• DHS carefully assesses whether the advantages of a timely release outweigh the advantages of going live with a system that provides more comprehensive functionality, requires fewer workarounds, and increases user satisfaction.	In process
<ul style="list-style-type: none">• Actively monitor tester and pilot feedback and track users' biggest pain points. Pain points can then be prioritized based on negative impact and project leadership can decide if fixing or changing poor designs can be implemented prior to go-live.	Not Started

IV&V Findings and Recommendations



Configuration and Development

#	Key Findings	Criticality Rating
70	<p>Risk – Insufficient configuration management could lead to development confusion and reduce the effectiveness of defect resolution.</p> <p>IV&V has yet to receive a detailed, comprehensive list of configuration items the ASI will be tracking.</p>	
Recommendations		Progress
<ul style="list-style-type: none">• ASI adhere to plans for configuration management as documented in BI-6 DDI Plan, Section 5.2 and clarify details and/or any changes with DHS.		In process
<ul style="list-style-type: none">• ASI validate plans for configuration management with DHS and agree on a meaningful set of configuration items or settings they will track.		In process
<ul style="list-style-type: none">• DHS and ASI work to clarify/solidify plans for the potential use of configuration management tools and DHS work to fund and procure a CM tool, as required, to avoid any negative impacts to the Project.		In process

IV&V Findings and Recommendations



Configuration and Development

#	Key Findings	Criticality Rating
80	<p>Issue – Development delays could negatively impact the project schedule and delay go-live.</p> <p>The ASI reported a decline in velocity, as the last 5 sprints show significant drops in actual vs. planned completed work. The ASI has reported that the lack of productivity resulted from many bugs, leading to rework. IV&V remains concerned that inadequate unit testing might contribute to this issue, potentially causing avoidable rework and increased technical debt, thereby impeding overall productivity. In the most recent sprint (#32), the development team completed 36 out of 63 story points, resulting in a 43% shortfall. Continued shortfalls will increase the likelihood of development delays affecting the go-live.</p>	M

Recommendations	Progress
<ul style="list-style-type: none">ASI effectively track and regularly provide DHS (potentially via the weekly DDI status meeting) with an accurate velocity (e.g., story points per day/week/month) and assure that the current velocity is accurately and consistently reflected in the project schedule.	In process
<ul style="list-style-type: none">The ASI should provide DHS with the time needed to effectively evaluate the software demonstrations (demos) and elicit productive design discussions with DHS attendees during each demo.	In process
<ul style="list-style-type: none">ASI regularly reports estimated story points for the total remaining project work to reach go-live and presents a dynamic burn-down chart to track the progress.	Not started
<ul style="list-style-type: none">The ASI should consider enhancing the depth of developer unit testing.	Not Started

IV&V Findings and Recommendations



System Design

#	Key Findings	Criticality Rating
73	<p>Risk – The planned BES infrastructure is complex which could be difficult to implement and maintain and could lead to schedule/cost impacts.</p> <p>No material update in this reporting period.</p>	

Recommendations	Progress
<ul style="list-style-type: none">• ASI develop a process to closely monitor cloud and other product changes (software updates/new releases), manage changes, and regression test once updates are applied.	In process
<ul style="list-style-type: none">• The project team work to establish strong governance over the utilization and maintenance of various tools/components.	In process
<ul style="list-style-type: none">• ASI allot time in the schedule to conduct proof of concepts to assure infrastructure components work as expected.	In process
<ul style="list-style-type: none">• ASI maintain a detailed schedule for DevOps implementation tasks to avoid unexpected delays that could delay project milestones and the critical path.	In process

IV&V Findings and Recommendations



System Design


#	Key Findings	Criticality Rating
86	<p>Issue – Limited collaboration between the ASI and DHS in the design process could lead to BES usability issues and functionality gaps in the application and not meeting critical business needs for DHS and State clients.</p> <p>IV&V commends the ASI and DHS team for reverting to conducting four live sprint demos in support of Epic 209. These proved to enable timely, efficient collaboration.</p>	M

Recommendations	Progress
<ul style="list-style-type: none">• Include a wide enough audience in all design and demo sessions to validate FNS and DHS functional and technical requirements and system usability.	In Process
<ul style="list-style-type: none">• Perform Sprint and Epic demos in alignment with development Sprint completion (demo functionality/requirements as they are developed) to get early feedback on work products.	Not Started
<ul style="list-style-type: none">• Perform comprehensive (demo all requirements) review during Epic demos, not just the items that were added/updated, allowing DHS to provide early feedback on possible issues/gaps that might not be apparent when focusing on specific functionality.	In Process

IV&V Findings and Recommendations




Testing

#	Key Findings	Criticality Rating
83	<p>Issue – Gaps in test coverage and slower-than-expected progress in testing may result in schedule delays if subsequent test phases uncover a higher volume of defects and user feedback than initially anticipated.</p> <p>Defects not detected during INT that leaked into SIT were comprised of low-level errors such as a button not being displayed, missing punctuation, duplicate fields, and data elements being out of order on a screen. The rising number of unresolved defects (see below) creates a risk that SIT exit could be delayed. The potential of additional defect leakage into FAT could delay FAT completion, delay the go-live date, and/or result in a BES solution that does not meet customer/client needs.</p> <p>Statistics as of the end of April:</p> <ul style="list-style-type: none"> • 566/570 (99%) of SIT core and interface test cases executed, and 348/356 (98%) of core correspondence test cases executed • A total of 416 SIT defects (1 Critical, 29 High, 189 Medium, 197 Low severity) were unresolved 	
Recommendations		Progress
<ul style="list-style-type: none"> • Monitor INT/SIT closely for both breadth and depth of testing to ensure the system is adequately tested. 		In process
<ul style="list-style-type: none"> • ASI should determine the root cause of the failure to identify simple defects in INT and SIT and implement effective improvement processes to confirm early testing is adequate before entering UAT/FAT. 		In process

IV&V Findings and Recommendations



Testing


#	Key Findings	Criticality Rating
89	<p>Issue – The current mitigation approach to complete the development of the remaining Epics is condensed and aggressive and may increase the likelihood of schedule delays, quality issues, and a higher volume of testing defects.</p> <p>The eight Epics expected to enter SIT in a phased approach are delayed and have not done so by the end of April. SIT is scheduled to end for these Epics on May 23, 2024.</p> <p>Of 348 executed core correspondence SIT tests, 177 (51%) failed, with the Eligibility Client Correspondence type comprising 83% of those failures. The high proportion of failed SIT correspondence tests supports IV&V's ongoing concern that overlapping testing phases and BES releases compromise test execution quality. IV&V is also concerned that the high number of SIT defects detected within a single correspondence type indicates its complexity and increases the risk that FAT testers (the final testers before Go-Live) are at risk of encountering similarly high defect counts that diminish their enthusiasm for the testing process and their advocacy of the application to other end users.</p>	

Recommendations	Progress
<ul style="list-style-type: none"> Develop Contingency Plans if the mitigation plan continues to see slippage affecting INT and SIT. 	In process
<ul style="list-style-type: none"> The ASI provides comprehensive INT results and SIT scenarios for incomplete Epics to DHS for review/approval ahead of SIT execution. 	In process
<ul style="list-style-type: none"> The ASI release a detailed schedule of events, including development completion, INT start, SIT start for each epic covered in the mitigation plan. 	In process
<ul style="list-style-type: none"> The ASI should evaluate if Epics entering SIT late might require retesting functionality that had already been tested 	In process

IV&V Findings and Recommendations



Security and Privacy

#	Key Findings	Criticality Rating
82	<p>Issue – The lack of technical documentation may lead to incorrect implementation statements or delay the System Security Plan (SSP).</p> <p>This risk is now realized, resulting in a finding type change from a risk to an issue. DHS and the ASI continue to work on documents the security assessment team requested. Some of these documents have not been written yet or are in draft form.</p> <p>The Security Assessment Team requested approximately sixty (60) documents and received two documents and six lists of system inventory.</p> <p>Each document requested is related to implementation responses in the System Security Plan (SSP) regarding how each security or privacy control is met. Failure to provide these documents to the assessment team will result in an assessment finding and a corresponding Plan of Action and Milestone (POAM) for remediation. A large number of findings or a small number of critical or high findings may result in a federal agency not providing access to their data used in determining eligibility status.</p>	
Recommendations		Progress
<ul style="list-style-type: none"> Determine when the infrastructure design baseline will be completed. 		In process
<ul style="list-style-type: none"> Determine when documentation will be created, updated, and available for the SSP authors. 		In process
<ul style="list-style-type: none"> Collaborate and communicate with SSP authors about when reliable and correct documentation will be available. 		In process
<ul style="list-style-type: none"> Perform a full review of all SSP controls for content and accuracy that have been written as drafts prior to the start of the Independent Security Controls Assessment of BES and submission of the SSP package to federal regulators. This will allow the SSP authors to update controls with changes from Design through Implementation. 		In process

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IV&V Status

IV&V Engagement Status



IV&V Engagement Area	Feb	Mar	Apr	Comments
IV&V Budget				
IV&V Schedule				
IV&V Deliverables				PCG submitted the final March IV&V Monthly Status Report.
IV&V Staffing				
IV&V Scope				

Engagement Status Legend



The engagement area is within acceptable parameters.



The engagement area is somewhat outside acceptable parameters.



The engagement area poses a significant risk to the IV&V project quality and requires immediate attention.



- IV&V activities in the April reporting period:
 - Completed – March Monthly Status Report
 - Ongoing – Review the BES Project Artifacts and Deliverables
 - Ongoing – Attend BES Project meetings, (see [Additional Inputs](#) pages for details)
 - Reviewed available ASI contracts and contract amendments documentation
- Planned IV&V activities for the May reporting period:
 - Ongoing – Observe BES Design and Development sessions as scheduled
 - Ongoing – Observe Bi-Weekly Project Status meetings
 - Ongoing – Observe Weekly M&O Project Status meetings
 - Ongoing – Observe Weekly Architecture meetings
 - Ongoing – Observe Weekly Security meetings
 - Ongoing – Monthly IV&V findings meetings with the ASI
 - Ongoing – Monthly IV&V Draft Report Review with DHS, ETS and ASI
 - Ongoing – Participate in Bi-Weekly DHS and IV&V Touch Base meetings
 - Ongoing – Review BES artifacts and deliverables

Deliverables Reviewed



Deliverable Name	Deliverable Date	Version
BI-5 Project Schedule - BES 2023 Primary	04/03/2024, 04/10/2024, 04/17/2024, 04/24/2024	N/A
BI-5 Project Schedule - BES 2023 DDI	04/03/2024, 04/10/2024, 04/17/2024, 04/24/2024	N/A
BI-22a System Integrity Review Tool	04/29/2024	N/A
M & O Project Schedule	04/25/2024	N/A

Additional Inputs – Artifacts



Artifact Name	Artifact Date	Version
BES 2023 Design Kanban board	N/A	N/A
FNS Handbook 901	01/2020	V2.4
NIST Special Publication 800-53 Security and Privacy Controls for Information Systems and Organizations	12/20/2020	Rev.5
SNAP_System_Integrity_Review_Tool	Sept 2022	N/A
Interface Dashboard – Confluence page	N/A	N/A
BES 2023 Implementation Planning – Confluence page	N/A	N/A
R0.12 Epic Assignment	N/A	N/A
UAT Testing Dashboard	N/A	N/A
R0.12 Epic and Sprint Demo Recordings	N/A	N/A
ADA dashboard	N/A	N/A
Jira Requirements Details	N/A	N/A
Jira Testing Lists	N/A	N/A



Meetings and/or Sessions Attended/Observed:




1. IV&V Team Meeting – 4/1/2024, 4/2/2024, 4/4/2024, 4/8/2024, 4/10/2024, 4/11/2024, 4/15/2024, 4/18/2024, 4/23/2024, 4/24/2024, 4/25/2024, 4/26/2024, 4/29/2024
2. IV&V March 2024 Pre-Draft MSR Findings Review – 4/4/2024
3. HI DHS BES January Draft IV&V Report Review – 4/11/2024
4. Bi-Weekly DHS and IV&V Touch Base – 4/2/2024, 4/9/2024, 4/16/2024, 4/30/2024
5. Weekly BES Infrastructure meeting – 4/5/2024, 4/12/2024, 4/19/2024, 4/26/2024
6. DHS/IV&V Check-in – 4/11/2024
7. Weekly Client BES 2023 Project Status Meeting – 4/3/2024, 4/10/2024, 4/17/2024, 4/24/2024
8. Security Touchpoint – 4/3/2024, 4/10/2024, 4/17/2024, 4/24/2024
9. Weekly Data Conversion Workgroup – 4/4/2024, 4/11/2024, 4/18/2024, 4/25/2024
10. (External) Review BES Enhancement Lifecycle – 4/5/2024
11. (External) Weekly Interfaces Touchpoint – 4/1/2024, 4/8/2024, 4/15/2024, 4/29/2024
12. (External) Readiness - Working Group Meeting – 4/2/2024, 4/16/2024, 4/23/2024, 4/30/2024
13. (External) Bi-Weekly Client BES 2023 Schedule Review/Status – 4/10/2024, 4/24/2024
14. (External) Bi-weekly BES CCB Meeting – 4/3/2024, 4/17/2024
15. (External) BES: FNS Connect – 4/11/2024, 4/25/2024
16. (External) IV&V Draft March MSR Feedback Review Meeting– 4/10/2024
17. (External) CIA Current Weekly Checkpoint– 4/2/2024, 4/23/2024, 4/30/2024
18. [External] BES M&O Project Schedule Review– 4/12/2024
19. eWorld/IV&V Mid Month Check-in – 4/18/2024
20. (External) BES M&O Project Status Meeting – 4/8/2024, 4/15/2024, 4/29/2024



Appendices



Appendix A – IV&V Criticality Ratings

Criticality Rating	Definition
 H	A high rating is assigned if there is a possibility of substantial impact to product quality, scope, cost, or schedule. A major disruption is likely, and the consequences would be unacceptable. A different approach is required. Mitigation strategies should be evaluated and acted upon immediately.
 M	A medium rating is assigned if there is a possibility of moderate impact to product quality, scope, cost, or schedule. Some disruption is likely, and a different approach may be required. Mitigation strategies should be evaluated and implemented as soon as feasible.
 L	A low rating is assigned if there is a possibility of slight impact to product quality, scope, cost, or schedule. Minimal disruption is likely, and some oversight is most likely needed to ensure that the risk remains low. Mitigation strategies should be considered for implementation when possible.

Appendix B – Findings Log



- The complete Findings Log for the BES Project is provided in a separate file.

Appendix C – Acronyms and Glossary



Acronym	Definition
APD	Advance Planning Document
ASI	Application System Integrator
BES	Benefits Eligibility Solution
CCWIS	Comprehensive Child Welfare Information System
CM	Configuration Management
CMMI	Capability Maturity Model Integration
CMS	Center for Medicare and Medicaid Services
CR	Change Request
DDI	Design, Development and Implementation
DED	Deliverable Expectation Document
DHS	Hawaii Department of Human Services
DLV	Deliverable
E&E	Eligibility and Enrollment
EA	Enterprise Architecture
ECM	Enterprise Content Management (FileNet and DataCap)
ESI	Enterprise System Integrator (Platform Vendor)
ETS	State of Hawaii Office of Enterprise Technology Services
FIPS	Federal Information Processing Standard
HIPAA	Health Information Portability and Accountability Act of 1996
IDM	Identity and Access Management (from KOLEA to State Hub)
IEEE	Institute of Electrical and Electronics Engineers
IES	Integrated Eligibility Solution
ITIL	Information Technology Infrastructure Library

Appendix C – Acronyms and Glossary



Acronym	Definition
IV&V	Independent Verification and Validation
KOLEA	Kauhale On-Line Eligibility Assistance
M&O	Maintenance & Operations
MEELC	Medicaid Eligibility and Enrollment Life Cycle
MEET	Medicaid Eligibility and Enrollment Toolkit
MOU	Memorandum of Understanding
MQD	Hawaii Department of Human Services MedQuest Division
NIST	National Institute of Standards and Technology
OE	Operating Environment
OIT	Department of Human Services Office of Information Technology
PIP	Performance/Process Improvement Plan
PMBOK®	Project Management Body of Knowledge
PMI	Project Management Institute
PMO	Project/Program Management Office
PMP	Project Management Plan
QA	Quality Assurance
QM	Quality Management
RFP	Request for Proposal
ROM	Rough Order of Magnitude
RMP	Requirements Management Plan
RTM	Requirements Traceability Matrix
SEI	Software Engineering Institute
SLA	Service-Level Agreement
SME	Subject Matter Expert

Appendix C – Acronyms and Glossary



Acronym	Definition
SOA	Service Oriented Architecture
SOW	Statement of Work, Scope of Work
VVP	Software Verification and Validation Plan
XLC	Expedited Life Cycle

Appendix D – Background Information



Systems Modernization Project

The DHS Enterprise Program Roadmap includes contracting with three separate vendors with the following high-level scope:

- ESI or Platform Vendor – responsible for the shared technology and services required for multiple Application vendors to implement and support functionality that leverages the DHS Enterprise Platform.
- ASI or ASI Vendor – responsible for the DDI of the Benefits Eligibility Solution (BES Project) enhancing the currently implemented Medicaid E&E Solution (KOLEA) and providing support for the combined Solutions.
- CCWIS Vendor – responsible for the DDI of the CCWIS Solution to meet the needs of child welfare services and adult protective services (CCWIS Project) and providing support for the Solution.

Systems Modernization IV&V Project

IV&V performs objective assessments of the design, development/configuration and implementation (DDI) of DHS' System Modernization Projects. DHS has identified three high-risk areas where IV&V services are required:

- Transition of M&O from DHS' incumbent vendor to the ESI and ASI vendors
- BES DDI
- CCWIS DDI

On the BES DDI Project, IV&V is responsible for:

- Evaluating efforts performed by the Project (processes, methods, activities) for consistency with federal requirements and industry best practices and standards
- Reviewing or validating the work effort performed and deliverables produced by the ASI vendor as well as that of DHS to ensure alignment with project requirements
- Anticipating project risks, monitoring project issues and risks, and recommending potential risk mitigation strategies and issue resolutions throughout the Project's life cycle
- Developing and providing independent project oversight reports to DHS, ASI vendors, State of Hawaii Office of Enterprise Technology Services (ETS) and DHS' Federal partners

Appendix D – Background Information



What is Independent Verification and Validation (IV&V)?

- Oversight by an independent third party that assesses the Project against industry standards to provide an unbiased view to stakeholders
- The goal of IV&V is to help the State get the solution they want based on requirements and have it built according to best practices
- IV&V helps improve design visibility and traceability and identifies (potential) problems early
- IV&V objectively identifies risks and communicates to project leadership for risk management

PCG's Eclipse IV&V® Technical Assessment Methodology

- Consists of a 4-part process made up of the following areas:
 1. **Discovery** – Discovery consists of reviewing documentation, work products and deliverables, interviewing project team members, and determining applicable standards, best practices and tools.
 2. **Research and Analysis** – Research and analysis is conducted in order to form an objective opinion.
 3. **Clarification** – Clarification from project team members is sought to ensure agreement and concurrence of facts between the State, the Vendor, and PCG.
 4. **Delivery of Findings** – Findings, observations, and risk assessments are documented in this monthly report and the accompanying Findings and Recommendations log. These documents are then shared with project leadership on both the State and Vendor side for them to consider and take appropriate action on.

IV&V Assessment Categories for the BES Project

- Project Management
- Requirements Analysis & Management
- System Design
- Configuration and Development
- Integration and Interface Management
- Security and Privacy
- Testing
- OCM and Knowledge Transfer
- Pilot Test Deployment
- Deployment



Solutions that Matter

ID	Title	Reporter	Finding Type	Identified Date	Category	Description	Significance	Recommendation	Event Horizon	Impact	Probability	Analyst	Finding Status	Status Update	Client Comments	Vendor Comments
95	A lack of documented negative tests (e.g., invalid inputs, boundary testing, and deviations from the normal flow) may result in DHS being unable to confirm this testing occurred	Hackett, Donna	Concern	4/30/2024	Testing	The ASI test lead confirmed that while negative and alternate path testing is not formally documented in SIT, error path testing will occur during ad hoc and end-to-end testing after SIT. The test lead also confirmed that documentation (other than defect logging) will not be generated during ad hoc testing	Without supporting documentation of planned negative tests and testing outcomes, it will be unclear whether a full range of testing has been completed to ensure the application's overall quality and robustness. This could result in defect leakage into FAT, possibly causing delays to FAT and Go-Live.	Since the ASI cannot perform negative and alternate path testing for all test cases, DHS should be involved in determining the subset of tests that should be covered.	5/2/2024	0	0	NA	Open			5/11/2024 Here is the negative testing documentation that the QA team executed: Invalid Personal Information Test Case: Enter invalid personal information (such as incorrect social security number, wrong date of birth, or invalid address) and verify the system's response Expected Result: The system should reject the invalid information and prompt the user to correct it. Missing Required Information Test Case: Submit the application with essential fields left blank (e.g., missing income details).
94	The lack of an effective way to validate requirements could lead to unmet user needs and project delays if DHS identifies requirement requirements that were not met during SIT	Hackett, Donna	Concern	4/29/2024	Requirements Analysis & Management	The Requirements Traceability Matrix (RTM) (BI-21) plays a vital role in ensuring the system's compliance with contractual commitments by associating each requirement with passed test cases. However, the approved project schedule shows the RTM completed on 6/26/24, which falls after the Core SIT end date of 4/2024. The ASI provided the BI-22 System Integrity Review Tool (SIRT) to DHS on April 26, 2024, but withdrew the deliverable due to DHS concerns. This BI-22a deliverable may help DHS validate requirements.	It is unclear to DHS and IVV how the ASI will trace requirement coverage for SIT completion. DHS may be unable to make an informed decision on SIT criteria. This could lead to DHS starting Final Acceptance Testing (FAT) and then realizing that not all requirements have been fully met, resulting in delays.	Develop a document that provides DHS with a feasible and effective way to map requirements to passed test cases, and per the BI-19 (Complete and Final Test Plan), "Maps the functional and technical requirements to the test cases and test scripts." • Ensure test scripts thoroughly and comprehensively test the system to assure each requirement has been fully met.	5/10/2024	0	0	NA	Open		5/11/2024 The BI-21 RTM deliverable has been reviewed and discussed multiple times at the bi-weekly CCB meeting. Draft reports of the BI-21 have also been provided and reviewed. Please refer to https://invisy.sbs-atlassian.net/wiki/spaces/PMO/pages/896370108/CCB-Meeting for more details.	
93	Due to the lack of physical and technical testing of the interfaces and data transfer failures, conditions may exist with data format, boundaries, and dependencies. These failures may result in intermittent and hard-to-isolate problems or errors	Reynolds, Mark	Finding - Risk	4/29/2024	Integration and Interface Management	Aside from the functional testing accomplished during epic testing, specific data flow testing is usually part of an interface definition.	This testing is essential before initial deployment to prevent unexpected and difficult-to-resolve issues, such as scrambled or missing data – or the system may have a fault or exception. Since the Project has not established and tested the fault scenarios, we do not know how the system may react.	Not Started 1. API interfaces should be tested for failure conditions during connection and transfer operations. 2. API interfaces should be tested for race conditions. 3. FTP and file interfaces should be tested for data and file integrity. 4. Test data fields for system impacts resulting from data that is poorly formatted, out of range, or other unexpected data transmission errors. 5. Interface records and files should be tested for format, length, or other physical formatting errors.	2024 2nd Qtr	4	2	Med	Open		5/11/2024 As mentioned at the pre-meet, a technical interface team plan does exist to address PCS's recommendations for this finding.	
89	The current approach to complete development of the remaining epics is condensed and aggressive and may increase the likelihood of schedule delays, quality issues, and higher volume of testing defects	Hackett, Donna	Finding - Issue	12/21/2023	Testing	Ten of the Epics scheduled for completion before Release 0.12 SIT will not be ready. To avoid SIT delays, the current approach is to begin SIT without the 10 Epics and test them as they are completed. Additionally, Release 0.12 development that was extended two weeks from the scheduled end date has been extended for another two business days.	Overlapping development and testing introduces potential quality issues. Insufficient testing may create gaps in SIT, leading to further quality issues. This may increase the risk of significant delays or introduce defects into production environment.	OPEN - Develop Contingency Plans if the mitigation plan continues to see slipping affecting IVV and SIT. • Develop a Risk Mitigation Plan to address challenges of managing multiple test environments, multiple code bases and versioning within and across Releases. - The ASI provides comprehensive NIT results and SIT scenarios for incomplete Epics to DHS for review/approval ahead of SIT execution. - The ASI release a detailed schedule of events, including development completion, NIT start, and SIT start for each epic covered in the mitigation plan. - The ASI should evaluate if Epics entering SIT late might require retesting functionality that had already been tested. - The plan to complete BES implementation does not include overlapping testing phases	Now	4	5	High	Open	4/30/2024 - The eight Epics expected to enter SIT in a phased approach are delayed and have not done so by the end of April. SIT is scheduled to end for these Epics on May 23, 2024. Of 348 executed core correspondence SIT tests, 177 (51%) failed, with the Eligibility Client Correspondence type comprising 83% of those failures. The high proportion of failed SIT correspondence tests supports IVV's ongoing concern that overlapping testing phases and BES releases compromise test execution quality. IVV is also concerned that the high number of SIT defects detected within a single correspondence type indicates its complexity and increases the risk that FAT testers (the final testers before Go-Live) are at risk of encountering similarly high defect counts that diminish their enthusiasm for the testing process and their advocacy of the application to other end users. 3/31/2024 - On 3/15/2024, DHS and the DOJ agreed to enter SIT for BES 1.0 without meeting the criteria for a complete test script package documented in BI-19 Complete and Final Test Plan. IVV is concerned that starting SIT without the complete and approved SIT Test Script package may lead to schedule delays. The updated schedule reflects an overlap of BES 1.0 NIT and SIT efforts which could result in resource constraints. Testing also overlaps across releases (BES 1.0 and BES 1.1) which adds complexity and risk when maintaining and coordinating code across multiple test environments. 2/22/2024 - During the February 21, 2024, Weekly Project Status Meeting and February 28, 2024, BES Schedule Review Meeting, the ASI introduced and detailed the Draft Go-to-Green plan. However, aside to the plan continue and final DHS approval is outstanding. The draft Go-to-Green plan indicates an ongoing overlap of development and testing activities as functionality will be phased into pilot and statewide rollout. System Development Best Practices recommend no testing phases be overlapped because of the amount of rework and instability this causes to the project team and project schedule were approved by DHS. Per the Go to Green plan, some required BES functionality will be implemented Pilot. This may create unplanned workarounds and rework as the full impact of this approach becomes known through testing and training. 02/29/24 - The ASI drafted a Go-to-Green plan that includes an October 2024 Go-Live date, with several features to be released after Pilot. Implementing the functionality of a core solution not tested in a real world Pilot environment may lead to unexpected issues and bugs. IVV remains concerned that user expectations will not be fully met as the go-live system will be missing functionality that could be important to many users. 01/23/23 - The ASI recently transitioned the OCM leadership role to a new resource. OCM activities will be crucial in reducing the risk associated with implementing the Core Solution and effectively managing user, public, and legislative expectations. The ASI has stated they do not expect this transition to negatively impact the project and have noted some potential improvements. 12/31/23 - Delays in some planned activities (e.g., epic demos, interface designs) and the development of the secure envelope are causing milestones to be missed. IVV remains concerned about potential quality impacts due to the need to accelerate efforts to compensate for missed milestones. Delays in some planned activities (e.g., epic demos, interface designs) and the development of the secure envelope is causing milestones to be missed. IVV remains concerned about potential quality impacts due to the need to accelerate efforts to compensate for missed milestones.		
88	Implementing a Core Solution for go-live carries inherent risks that may impact overall project success and reduce user adoption.	Fors, Michael	Finding - Risk	11/30/2023	Project Management	The project has elected to implement a Core Solution to go-live to meet their stated timeline. This version is generally referred to as Agile software development as a Minimum Viable Product (MVP), which is a simplified version of a product that [1] offers functionality that meets the core needs of users, [2] can accelerate the timeline for go-live, and [3] allows the project to get real-world feedback from users to refine future product development.	Going live with a limited version of a software product entails inherent risks, such as potential challenges in securing user buy-in. This can result in limited user adoption, user dissatisfaction, and negative publicity, particularly considering the financial investment made for the delivery of limited functionality. A compressed timeline may compromise the quality of design, user interface sophistication, and lead to an uptick in software bugs and suboptimal code. Further, this approach may expose the project to regulatory compliance risks, such as last-minute objections from regulatory bodies like FHS, which could find certain system elements non-compliant with their standards and delay the go-live date. Misalignment between stakeholder expectations and the Core Solution may lead to dissatisfaction or a lack of support for the project and could negatively impact future project funding requests. Implementing a limited Core Solution typically requires the customer to implement multiple workarounds until automated features can be built into the system. Users could become impatient if these features are further delayed when bug fixes and other features take precedence. Others may lose confidence that the features or system improvements will ever be implemented. Going live with a solution that is missing functionality that stakeholders were expecting typically requires an increase in OCM efforts both by the ASI and DHS staff to temper stakeholders' reactions to a system with limited functionality.	Increase OCM efforts to effectively manage user, general public, and legislative expectations for the Core Solution approach. • Prioritize feedback from users and FHS to ensure the Core Solution meets their core needs and so users are clear on what features they are, and are not, getting in the released product. • Actively monitor, assess, and address potential challenges throughout the core solution development process including code quality, cutting scope to meet development limitations, insufficient user validation or demonstrated functionality, and fully defined workarounds to accommodate for the missing functionality. • DHS carefully assess whether the advantages of a timely release outweigh the advantages of going live with a system that provides more comprehensive functionality, require fewer workarounds, and increases user satisfaction and buy-in. • Actively monitor tester and pilot feedback and track users' biggest pain points. Pain points can then be prioritized based on negative impact and project leadership can decide if fixing or changing poor designs can be implemented prior to go-live.	Now	3	3	Med	Open	4/30/2024 - No material update. 03/30/24 - The ASI's Go to Green plan and project schedule were approved by DHS. Per the Go to Green plan, some required BES functionality will be implemented Pilot. This may create unplanned workarounds and rework as the full impact of this approach becomes known through testing and training. 02/29/24 - The ASI drafted a Go-to-Green plan that includes an October 2024 Go-Live date, with several features to be released after Pilot. Implementing the functionality of a core solution not tested in a real world Pilot environment may lead to unexpected issues and bugs. IVV remains concerned that user expectations will not be fully met as the go-live system will be missing functionality that could be important to many users. 01/23/23 - The ASI recently transitioned the OCM leadership role to a new resource. OCM activities will be crucial in reducing the risk associated with implementing the Core Solution and effectively managing user, public, and legislative expectations. The ASI has stated they do not expect this transition to negatively impact the project and have noted some potential improvements. 12/31/23 - Delays in some planned activities (e.g., epic demos, interface designs) and the development of the secure envelope are causing milestones to be missed. IVV remains concerned about potential quality impacts due to the need to accelerate efforts to compensate for missed milestones. Delays in some planned activities (e.g., epic demos, interface designs) and the development of the secure envelope is causing milestones to be missed. IVV remains concerned about potential quality impacts due to the need to accelerate efforts to compensate for missed milestones.	04/10/2024 - "some required BES functionality will be implemented post-Pilot." What does this mean? I think I know the intent and perhaps update as such? "Per the Go to Green plan, the ASI plans to implement required functionality in multiple releases. (Pilot/Statewide/Post Statewide)" 12/15/20 23 - Above already addressed by DHS/Go Campo. Ensure recommendations reflect "In Progress" or "In Process".	

ID	Title	Reporter	Category	Identified Date	Category	Description	Significance	Recommendation	Event Horizon	Impact	Priority	Analyst	Status	Findings Update	Client Comments	Vendor Comments
80	SE Limited collaboration between the ASI and DHS in the design process could lead to BEES usability issues and functional gaps in the applications and not meeting client business needs for DHS and State clients.	Molina, Brad	System Design Issue	8/17/2023	System Design	During the UAT process for release 31, there has been a high level of concerns raised by the DHS testers regarding the usability of the BEES system, challenges with the user interface, missing functionality, and basic screen layout issues that would not be expected in a modern application. Based on defect reporting from the UAT process, a large majority of the defects are related to "design errors". Although the release 11 UAT Cycle was testing a partially build system, a significant amount of design defects was attributable to functionality developed for Release 11.	A significant amount of money and DHS resource time have been invested in the BEES solution, with the expectation that the new system will at minimum provide all functionality found in current applications - but really should provide additional capabilities, greatly enhanced user interface, and overall improved usability from current systems. Should the solution fall short of expectations, there may be challenges in DHS staff adoption, lack of confidence in the solution providing the accurate information needed to provide benefits to HI citizens; reduction in ability for DHS to provide the same level of needed services to clients, resulting in bad publicity for DHS and the state.	OPEN - Include a wide enough audience in all design and demo sessions to validate FNS and DHS functional and technical requirements and system usability. Perform Sprint and Epic demos in alignment with development sprint completion (demo functionality/requirements as they are developed) to get early feedback on work products. Perform comprehensive (demo all requirements) review during Epic demos, not just the items that were added/updated, allowing DHS to provide early feedback on possible issues/gaps that might not be apparent when focusing on specific functionality. CLOSED - ASI and DHS re-evaluate the effectiveness of the recorded Sprint review process to ensure that designs align with DHS expectations. (closed 3/31/2024)	Now	4	3	Med	Open	04/30/2024 - IVBV comments the ASI and DHS team for re-evaluating to conducting four sprint demos in support of Epic 209. These proved to enable timely, efficient collaboration. 03/31/2024 - Due to a high number of questions regarding the design of the BEES system, the ASI (through Supervision), the ASI committed to hosting another demo to address all the feedback. Changes raised late in the design process could require code changes, potentially causing schedule delays or the resulting solution not meeting the business need. DHS staff attending Epic demos should be prepared with an understanding of the agreed-upon design and policy requirements relevant to the Epic so that feedback is efficient and on point. 02/29/2024 - One demo (Epic Demo 211) was held in February as the ASI focused on developing a Go-to-Green Plan for the Project. DHS also raised concerns in Readiness meetings regarding a gap in design where eligibility is not forced to run when critical benefit data is modified on a case - which could also point to a gap in collaboration on key design decisions. 01/31/2024 - DHS viewed Sprint demos for Epics 247 and 284 on January 9, 2024, where several concerns/issues were raised, resulting in necessary bug fixes. User experience issues that should have been raised during the sprint demos were brought up during the Epic Demo for Epic 240 (regulatory agreements), that the ASI is not considering at this time. As of the end of January, the ASI was developing a Go-to-Green Plan to mitigate several delays, including demos. 12/31/2023 - DHS opened a new high-severity project risk, which then escalated to an issue, on December 4, 2023, since the sprint and epic demos will not be completed by the end of the Release 0.12 DDI phase. IVV shares this concern, as issues discovered during the demos will require additional design, development, and testing for the impacted epic, potentially pushing out the schedule. 11/20/2023 - As of the end of November, the ASI has nine Sprint demos to execute and all 28 Epic	10/11/2023 Jessica - Our SMEs are providing their feedback. This is one of the items that I clarified with IVBV, that there are feedback given, no feedback means design is ok. I rec'd an email back from Joe F. that IVBV wants to meet with our reviewer to validate this.	04/10/2024 - eWorkES disagrees with the current finding update. Epic demos attendees not involved with Sprint demos or planning sessions are providing feedback. DHS SMEs are involved from the get-go. DHS is not having internal conversations or reading design documents. DHS should be having internal meetings to discuss policy.
83	Gaps in test coverage and slower than-expected progress in testing may result in schedule delays if subsequent test phases uncover a higher volume of defects and user feedback than initially anticipated.	Hackett, Donna	Finding - Issue	6/17/2023	Testing	After examining the Project's R11 QA Dashboards, R11 Traceability Dashboards, and Test Repository, gaps in testing coverage may exist and the progress of testing might be lagging. Concerning testing coverage, it appears that not all epics and use cases in R11 have associated test cases or are testing the correct use cases. In terms of progress, some test cases remain unexecuted, and not all defects have been resolved as the project commences System Integration Testing (SIT). The ASI has plans to complete the SIT exit criteria by June 23, 2023, about 2 weeks after SIT begins.	Identifying defects early is vital for effective testing, as it is more efficient and cost-effective to address issues during the early testing stages. If there is slow progress or incomplete testing in the early stages, it can result in more defects leading into subsequent testing phases, necessitating more extensive and rigorous testing efforts. Insufficient testing coverage or slower-than-anticipated progress throughout the project lifecycle increases the risk of encountering significant delays, extensions, or the introduction of defects into the production environment during the final testing stage, known as Final Acceptance Testing (FAT).	OPEN - DHS and ASI monitor INT/SIT closely for both breadth and depth of testing to ensure the system is adequately tested. DHS should request that the ASI develop a Corrective Action Plan to address the failure of the prior test phases (INT, INT) to capture defects that rolled into SIT. CLOSED - ASI should determine the root cause of the failure to identify specific defects in INT and SIT and implement effective improvement processes to confirm early testing is adequate before entering UAT/FAT (Closed 4/30/2024) NOT COMPLETE - The Project team reviews the SIT exit criteria and reviews them as needed to ensure UAT/FAT begins with the best system possible. (3/31/2024)	UAT	4	4	High	Open	4/30/2024 - Defects not detected during INT that leaked into SIT were completed as a matter of course. A number of low-level, non-critical missing punctuation, duplicate fields, and data elements being out of order or a screen. The rising number of unresolved defects (see below) creates a risk that the test could be delayed. The potential of additional defect leakage into FAT could delay FAT completion, delay the go-live date, and/or result in a BEES solution that does not meet customer/client needs. Statistics as of the end of April 30/4/2024 (95%) of SIT core and interface test cases executed, and 348/356 (98%) of core correspondence test cases executed. A total of 416/577 defects (1 Critical, 29 High, 189 Medium, 197 Low severity) were unresolved. 3/31/2024 - DHS and the ASI entered into BES 1.0 on 3/15/2024 without approved test scripts for several Epics that will be phased into SIT after testing begins. The phased introduction of test scripts can negatively impact testing and reduce the time available to identify and fix defects within scheduled timeframes. IVV review of test scripts shows that quality could be improved by adding additional details or steps to the test scripts to verify test coverage. 2/21/2024 - Entry into Release 12 if SIT is delayed, the ASI is currently rescheduling the start date. A complete Release 12 SIT script package continues to be developed with 301 test scripts approved and ready for SIT and BES test scripts pending review or in draft status. With a large number of test scripts pending and an undetermined SIT entry date, the risk of further delays remains high. Without the continuation of the comprehensive peer review of SIT test scripts, the risk of testing gaps remains high. 1/31/2024 - Due to development delays and testing defects, entry into SIT has been delayed to an undetermined date. Approved and final SIT test scripts remain incomplete for twenty-five Epics. With the lack of a complete SIT script package before the SIT/Go/No-go decision, the risk of introducing gaps in test coverage in SIT remains. 12/21/2023 - The ASI 4/30/2024 - This risk is now realized, resulting in a finding type 3 - The ASI is at risk to go live. DHS and the ASI continue to work on documents the security assessment team requested. Some of the documents have not been written yet or are in draft form. The Security Assessment Team requested approximately sixty (60) documents and received two documents and six lists of system identifiers for each document requested in relation to implementation responses in the System Security Plan (SSP) regarding how each security or privacy control is met. Failure to provide these documents to the assessment team will result in an assessment finding and a corresponding Plan of Action and Milestones (POAM) for remediation. A large number of findings or a small number of critical or high findings may result in a federal agency not providing access to their data used in determining eligibility status. 03/30/2024 - During March, the DHS/ASI security teams focused on documentation and the Tenable Nessus scans on the base BEES Production environment (without the Secure Enclave). The Secure Enclave is not included in the BES 1.0 Core Release and will not be part of Pilot. Therefore, the upcoming 3rd party security assessment will not include the Secure Enclave. Security documents (e.g., data flow, network diagrams, Plan of Actions and Milestones (POAMs), and procedural documents such as Change Management procedures) may not be complete for the 3rd party assessment starting in April, which may result in potential findings and POAMs for remediation if not available. Additionally, DHS reported that several DHS Security and Privacy policies were not updated in the past 365 days as required by NIST 800-53. 02/29/2024 - The security staff resolved issues in the Google Assured Workloads services for the Secure Enclave. The ASI continues to remediate findings from the vulnerability and compliance scans on the environment and work through issues related to the Tenable Nessus credentialized scanning. The security	04/10/2024 - ASI test scripts for pilots in epics are going through the same review process. While not all test scripts are approved and reviewed by DHS, the one epics reference is incorrect. There were a few more SIT Client Correspondence scripts not approved by DHS when a SIT go decision was rendered which was accepted by DHS. eWorkES is not aware of any gaps in test coverage and recommends PCI provide more details supporting this claim. Nicole and Donna to meet to review INT/SIT test script process.	
82	The lack of technical documentation may lead to incorrect implementation statements or delay the System Security Plan	Heath, Dustin	Finding - Issue	4/27/2023	Security and Privacy	In April, the ASI/DHS system security plan (SSP) authors began writing implementation statements. Currently, the technical documentation supporting the SSP is unavailable, outdated, or in draft form. During April, decisions on what tools support the SSP controls are still being decided on. Implementation statements are currently being written from the perspective of how the system should be designed from the SSP author's perspective instead of how the system is actually designed. The SSP authors need to know and use documentation such as System Architecture and Design, network topology, dataflow, and protocols, tools used for logging, etc.	Once the system architecture and design have been completed, the SSP authors may need to edit or rewrite implementation statements. A full draft of the SSP is scheduled to be published August 15th, 2023, and the final SSP (ready for federal partner review) is scheduled for September 15, 2023. The SSP is a large technical document with hundreds of controls and control enhancements, and each one requires an implementation statement and how the control or enhancement has been met.	- Determine when the infrastructure design baseline will be completed. - Determine when documentation will be created, updated, and available for the third party assessment. - Collaborate and communicate with SSP authors about when reliable and correct documentation will be available. - Perform a full review of all SSP controls for content and accuracy that have been written as drafts prior to the start of the third party assessment and submission of the SSP package to federal regulators. This will allow the ASI authors to update controls with changes from Design through Implementation.	Prior to the start of the third party assessment.	4	5	High	Open	4/30/2024 - This risk is now realized, resulting in a finding type 3 - The ASI is at risk to go live. DHS and the ASI continue to work on documents the security assessment team requested. Some of the documents have not been written yet or are in draft form. The Security Assessment Team requested approximately sixty (60) documents and received two documents and six lists of system identifiers for each document requested in relation to implementation responses in the System Security Plan (SSP) regarding how each security or privacy control is met. Failure to provide these documents to the assessment team will result in an assessment finding and a corresponding Plan of Action and Milestones (POAM) for remediation. A large number of findings or a small number of critical or high findings may result in a federal agency not providing access to their data used in determining eligibility status. 03/30/2024 - During March, the DHS/ASI security teams focused on documentation and the Tenable Nessus scans on the base BEES Production environment (without the Secure Enclave). The Secure Enclave is not included in the BES 1.0 Core Release and will not be part of Pilot. Therefore, the upcoming 3rd party security assessment will not include the Secure Enclave. Security documents (e.g., data flow, network diagrams, Plan of Actions and Milestones (POAMs), and procedural documents such as Change Management procedures) may not be complete for the 3rd party assessment starting in April, which may result in potential findings and POAMs for remediation if not available. Additionally, DHS reported that several DHS Security and Privacy policies were not updated in the past 365 days as required by NIST 800-53. 02/29/2024 - The security staff resolved issues in the Google Assured Workloads services for the Secure Enclave. The ASI continues to remediate findings from the vulnerability and compliance scans on the environment and work through issues related to the Tenable Nessus credentialized scanning. The security	5/11/2024 - Feedback already provided by David Phillips at pre-meet. "My concern with the content & privacy policies is that there is no context provided regarding the responsibility for the majority of the documents. As we have discussed previously, DHS has this but has been unable to produce these documents, but that would not be evident to the reader without additional context."	
80	Development delays could negatively impact the project schedule and delay go-live.	Fors, Michael	Finding - Issue	6/30/2022	Configuration and Development	ASI had previously reported development activities have been slowed as they have been unable to achieve and/or maintain their expected development velocity. Previously, the development team was challenged with accurately estimating development task level of effort (i.e., story points) and the project has been challenged with producing a project schedule that accurately reflects realistic timelines (see Finding #74). The ASI continues to be challenged with finding qualified resources in a timely manner.	If the ASI is unable to achieve a velocity that enables them to meet planned milestones, schedule delays may lead to a delayed system go-live date. Failure to achieve a level of accuracy in estimating development tasks could lead to a project schedule that is flawed and unrealistic. Previously, DHS had indicated, and IVV agreed, that some of these delays were due to some ASI BAAs lacking the expertise required to create optimal designs and system specifications that developers could consume without requiring extensive clarification from the ASI BAAs team. DHS and IVV observed instances where ASI BAAs have presented less than optimal designs and left it to DHS who may lack software or UI design expertise to improve, which has contributed to unproductive design sessions (see Finding #81). It remains unclear if scope creep has contributed to these delays.	OPEN - Request the ASI effectively track and regularly provide DHS (potentially via the weekly DDI status meeting) with an accurate velocity (e.g., story points per day/week/month) and assure that the current velocity is accurately and consistently reflected in the project schedule. *ASI provide DHS with the time needed to effectively evaluate the software demonstrations (demo) and elicit productive design discussions with DHS attendees during each demo. *ASI regularly report estimated story points for the total remaining project work to reach go-live and presents a dynamic burn-down chart to track the progress. *ASI consider taking steps to increase thoroughness of developer unit testing. The ASI may consider increasing structure and accountability around developer unit testing to reduce the number of bugs found in SIT, thereby reducing rework and churn. - The ASI should consider enhancing the depth of developer unit testing. COMPLETE - DHS request the ASI strategically add the right project team resources to effectively increase velocity. Note that adding additional junior resources may not be as effective as staffing additional expert-level development, analysis, and other resources that can lead and mentor junior resources. *ASI reviews the development process and identifies and mitigates the challenges preventing them from incorporating Epic demo activities into the project schedule. (9/29/23 - ASI will not be doing this, with DHS approval)	Immediate	3	3	Med	Open	04/30/24 - The ASI reported a decline in velocity, as the last 5 sprints show significant drops in actual vs. planned completed work. The ASI has reported that the lack of productivity resulted from many bugs, leading to rework. IVBV remains concerned that inadequate unit testing might contribute to this issue, potentially causing avoidable rework and increased technical debt, thereby impacting overall productivity. In the most recent sprint (#32), the development team completed 86 out of 63 story points, resulting in a 35% shortfall. Continued shortfalls will increase the likelihood of development delays affecting the go-live. 03/31/24 - To address this issue, the ASI reported they built the revised BES Project Schedule with some slack float time. IVV is researching Data Conversion and the impact, if any, it had on the most recent Schedule Delay. The conversation has some remaining data elements to map. They reported that the full scope of "data cleaning" may not be complete before converting the data. IVV is continuing to research and plans to provide an update in a future report. 02/29/24 - The ASI reported additional delays that will push out Go-Live to October 2024, based on the draft Go-to-Green plan. The ASI reported the Root Causes of this delay include - Excessive defects, - Lack of Code quality with downstream impacts to include additional defects and critical blockers causing delays with Sprint and Epic demos and the completion of Integration Testing. - Development delays with the Hana/BES interface and Secure Enclave. The draft Go-to-Green plan includes reorganizing the development team to have more experienced developers focus on critical defects and consistent enforcement of development standards across all development teams and other process improvements. 01/23/24 - Ongoing development delays are still affecting the Project, requiring additional development and NLT Sprints and postponing Sprint and Epic demos. To keep the planned go-live date the project elected to overlap INT and SIT, but this is subject to the	Progress should reflect "in process". David Rella conducted a high	

ID	Title	Reporter	Finding Type	Identified Date	Category	Description	Significance	Recommendation	Event Horizon	Impact	Probability	Priority	Analyst	Finding Status	Initial Update	Client Comments	Vendor Comments
74	A-BES Project schedule based on inaccurate estimations diminishes effective planning and resource management, which could result in late deliveries, cost increases, and a late go-live.	Molina, Brad	Finding - Issue	11/29/2021	Project Management	DHS and the ASI have tried multiple times to rework the schedule with results that have not yielded improvement. Concerns with the structure, estimating practices, and ability to manage to the schedule persist. The use of multiple tools to track resources obfuscate resource management. Previous IV&V findings focused on specific schedule components such as resource management and critical path analysis, all of which were addressed and closed.	If estimates for project schedule activities are not accurate, this can lead to constant schedule changes, resources not being available when needed, rushed activities, and general frustration which can lead to schedule delays, low quality output, scope changes, and budget issues.	OPEN - Monitor, evaluate and revise scheduling estimates for accuracy based on the project team best performance and resources available to do the remaining work. ASI conduct a Root Cause Analysis (RCA) with DHS and IVV to determine why the BES project continues to experience schedule delays. ASI Project Management works with the development teams to evaluate the accuracy of velocity and adjust accordingly to reduce risk in the revised BES project schedule. NOT COMPLETED - ASI provide details on how Velocity measures were used to calculate the remaining development work. COMPLETE DHS and the ASI agree to a revised schedule against which project deliverables can be managed. 12/28/2023 - completed ASI host a weekly meeting with DHS and IVV to review all changes to the project schedules (Primary and DDI). 06/31/2023 - completed CIOEED ASI plan and execute Epic development so that Epic demos can occur earlier in the release schedule and allow time for possible revisions. 12/31/2023 (no done) ASI requested DHS, and key milestones to the project schedule, such as Sprint and Epic demos, to show key progress towards completion of Epics. (9/29/23) ASI says that they will not do this. Confirm current assumption that a delay with the current go-live date will not result in major implications. (6/29/23) Leverage velocity and burn down charts to adjust development tasks estimates if needed. Leverage velocity and the burn down charts to adjust development task estimates if needed. 04/20/2023 - ASI using Jira) Using the available tools, review the current estimates to complete each activity compared to past actual hours (1/31/2023 - new ASI - Not Started) Update as necessary and provide the DHS/ASI Project Managers with reports and data that accurately reflect the DHS/ASI resource needs along with over/under allocations of staff for the duration of the Project (1/31/2023) - new ASI - Not Started) Develop mitigation and contingency plans that are tracked/managed by DHS/ASI for all tasks that are behind	Immediate	3	4	High	Open	4/30/2024 - Several tasks have been delayed in the project schedule - some (i.e., data conversion) more than 20 days. Additionally, the HANA/BES integration (Epic 209), scheduled to enter SIT on April 15, was in development at the end of the month. IV&V is concerned that under-estimated level of effort on tasks in an aggressive schedule could impact go-live date. 3/3/2024 - The BES Project Schedule that aligns with the Go to Green plan was published by the ASI during this reporting period. The overlap of Integration Testing (INT) and SIT, and adding functionality into SIT after it has started may lead to more delays as seen in prior schedules. 1/29/2024 - The Project has experienced many delays, the most recent of which was a four week delay announced the end of January and the draft Go-to-Green Plan is adding another six months. 1/31/2024 - At the start of January, a 4-week schedule delay to SIT was reported by the ASI to avoid an overlap of INT and SIT. On January 31, 2024, the ASI reported that SIT would not start as planned. The project status report indicated "Not in" most categories and the ASI reported they were developing a Go-to-Green Plan. Further delays may be imminent. IVV has raised the critically rating of this finding to "High". 12/31/2023 - With 10 sprints to release 0.12 in development, another development and integration testing sprint was added to the schedule. IVV remains concerned that under-estimated effort and resulting elongation of schedule could impact implementation milestones. 11/30/2023 - Additional development and testing sprints were added to the schedule, supporting IVV's concern that the effort required for completing the core solution for BES continues to be under-estimated, potentially resulting in missed implementation milestones. The additional development sprints for interfaces will overlap with Integration Testing (INT) and the start of SIT in order to meet the Pilot and Go-Live dates. 10/31/2023 - The BES project schedule continues to have significant		5/11/2024 As mentioned at pre-meeting, there are very few updates to the current schedule. Most were due to a misalignment of tasks to the updated CIG plan. This includes the data conversion tasks being more than 20 days. 04/10/2024 - Please confirm the description of this issue is still relevant. The overlap of testing is not unique to software development projects. What does "...adding functionality into SIT after SIT started continues to persist in the BES	
73	The planned BES infrastructure is complex which could be difficult to implement and lead to schedule/cost impacts.	Fors, Michael	Finding - Risk	10/28/2021	System Design	Current ASI infrastructure plans include a significant number of sophisticated components that make up a complex cloud infrastructure. Further, the Project Team has yet to finalize components that will make up the BES infrastructure and the additional costs and time to configure, test, and implement the planned complex environment remain unclear.	If the level of effort to implement and manage the complexities of the BES infrastructure is not accurately accounted for and staffed by the ASI, the project could be met with unexpected costs and schedule delays. Delays in finalizing the components being implemented could exacerbate this risk and lead to further delays. Complex platforms often present system maintenance and operations challenges as system changes can hold the increased potential for system failure (i.e., due to the significant number of "moving parts") and increase the level of time and effort to resolve infrastructure and application-level bugs. Further, some components remain in an immature state compared to their legacy counterparts. For example, the project recently experienced a system failure because Google Cloud failed to clearly communicate a change that led to failure in another component (i.e., Nexus). Google Cloud is generally viewed as a less mature product offering compared to their rivals (Amazon Web Services, Microsoft Azure). IV&V remains concerned that this could lead to failures at critical points in the project (including post-go-live production failures) that could be difficult to resolve and lead to project disruption. If DHS intends to eventually reduce M&O outsourcing costs turning over M&O tasks to State employees, they could face challenges supporting tools they may not be familiar with in a complex infrastructure environment.	ASI develop a process to closely monitor cloud and other product changes (software updates/new releases), manage changes, and regression test once updates are applied. - The project team work to establish strong governance over the utilization and maintenance of the various system tools/components. - ASI alter time in the schedule to conduct proof of concepts to assure infrastructure components work as expected. - ASI maintain a detailed schedule for DevOps implementation tasks to avoid unexpected delays that could delay project milestones and the critical path.	Next several months	2	2	Low	Open	4/30/24 - No material update in this reporting period. 3/31/24 - During a recent Change Control (CCB) meeting, the ASI presented a plan for a for-cost change request (CR) to the design of the Secure Enclave (the addition of roles). In the CCB, it was clear that DHS and the ASI were not in agreement regarding the funding of this change request. 2/28/24 - No material update in the reporting period. 1/29/24 - No material update in the reporting period. IVV continues to monitor this finding. 11/30/23 - Some components of the BES system infrastructure have yet to be finalized and tested, it remains unclear how or if the added complexity will impact project schedules and budgets going forward. The ASI has reported they are close to finalizing the Secure Enclave infrastructure to house PII data. The ASI appears to be making progress on DR plans and designs. 10/30/23 - The ASI continues to have productive discussions with DHS during their weekly Architecture calls. The ASI has yet to finalize their plans and technical architecture for conducting Disaster Recovery (DR). The cloud technology being implemented offers some benefit and can simplify some elements of DR. However, it remains unclear if the complex infrastructure with the multitude of components being employed will impact their ability to test and perform DR. 9/28/23 - The ASI has experienced turnover of their Enterprise Architect position; this does not appear to have had a material impact on the overall infrastructure build. The ASI continues to make progress in the build-out of their infrastructure and is confident that the automation they've implemented will simplify many maintenance tasks. Given that, they remain confident they will be able to meet infrastructure milestones without hindering development. The ASI has also stated that maintaining the system post-go-live will not require extensive effort and that achieving the SLAs will be possible. IVV remains	13/17/2023 - Again, why is DR being referenced here? Per the current schedule, the DR plan is scheduled to be submitted at the end of the year. Remainder: Pilot Go-Live is April 2024. 10/31/2023 - Yes - we still do not understand why this remains. 10/11/2023 - Please reference your updates on finding BES Security and Privacy which documents the work being done for the Secure Enclave.		
70	Insufficient configuration management could lead to development confusion and reduce the effectiveness of defect resolution	Fors, Michael	Finding - Risk	8/23/2021	Configuration and Development	The BI-6 DDI Plan Deliverable, Section 5.2 establishes the framework for the Configuration Management Plan, however, it remains unclear if sufficient progress has been made toward establishing CM processes and governance, selecting CM tools (e.g., CMDB), and building out the CM infrastructure. The project Security Plan has yet to be finalized which may include additional requirements or decisions that could impact CM. The project currently relies on GitHub for tracking of some configurations.	Configuration Management is a set of processes and procedures that ensures the BES is understood and works correctly. The BES solution includes tools that may provide a level of automation for Configuration Management that may reduce errors and should provide the project team with accurate, dynamic and timely information on some of the configuration items. However, it is critical that DHS/ASI agree to the full list of items that are included in the Configuration Management Plan along with the details regarding the management of the configuration items, reporting and audit features.	OPEN + ASI adhere to plans for configuration management as documented in BI-6 DDI Plan, Section 5.2 and clarify details and/or any changes with DHS. + ASI validate plans for configuration management with DHS and agree on a meaningful set of configuration items or settings they will track. - DHS and IVV work to clarify/validate plans for the potential use of configuration management tools. COMPLETE + identify the DHS POC for the Configuration Management Activities that would provide oversight of configuration management activities and assure defined CM steps and plans are being followed, as effective, and are achieving DHS objectives for CM. 7/31/2022	ASAP	2	2	Low	Open	4/30/24 - IVV has yet to receive a detailed, comprehensive list of configuration items the ASI will be tracking. 3/31/24 - Responsibility for the Configuration Management Plan (CMP) reverted to the ASI (previously, the DHS Security Contractor was updating the CMP for related security controls). The ASI is resuming this scope of work at a time when its resources are stretched and may lead to CMP and configuration management quality challenges. 2/29/24 - No material update in this reporting period. 1/23/24 - No material update in the reporting period. 12/31/23 - The project will utilize the DHS contractor currently assisting with security activities to update the Configuration Management Plan (CMP). The scope of work that the DHS contractor is responsible for is unclear to IVV. 11/30/23 - The ASI has yet to provide a detailed list of configuration items to DHS and IVV. IVV has restated this request to the ASI so that the level of detail is clear. 10/26/23 - The ASI provided broad information on the configuration items being tracked but have yet to provide detailed configuration items for IVV review. The ASI has deprioritized some configuration management activities, which it intends to perform in preparation for Maintenance and Operations (M&O). 9/28/23 - The ASI gained DHS approval on the items that will be tracked and monitored as part of configuration management. IVV requested the list last month and is waiting on the ASI to respond. 8/31/23 - No material update. 7/31/23 - No material update. 6/30/23 - No material update. 5/31/2023 - The ASI continues to make progress with its utilization of the ServiceNow Configuration Management (CM) tool. They have recently performed an initial import of Google Cloud Platform server details into the ServiceNow Configuration Management Database. *** Continued work. Setup in ServiceNow will be building up instances. Ongoing support and maint. Don't think still a risk. IVV to discuss. 4/30/2023 - The ASI finalized the		10/31/2023 - VC - We provided a listing, working on a plan to implement. MF - Broad categories VC - we are working on the details now. This will become more important and we want to get ahead of the M&O plan. 10/11/2023 - IVV requested the list last month and is waiting on the ASI to respond - Please see the following list of configuration management items which are/will be managed by ServiceNow: Incident Response Change/Configuration Management	