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March 1, 2021

The Honorable Ronald D. Kouchi,
  President, and
    Members of The Senate
Thirty-First State Legislature
Hawaii State Capitol, Room 409
Honolulu, Hawaii 96813

The Honorable Scott K. Saiki,
  Speaker, and
    Members of The House of Representatives
Thirty-First State Legislature
Hawaii State Capitol, Room 431
Honolulu, Hawaii 96813

Dear 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's Employer-Union Health Benefits Trust Fund Benefits Administration System project.

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

Sincerely,

Douglas Murdock (Mar 5, 2021 14:59 HST)

DOUGLAS MURDOCK
Chief Information Officer
State of Hawai'i

Attachment (1)

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
OFFICE OF ENTERPRISE TECHNOLOGY SERVICES

Hawaii Employer-Union Health Benefits Trust Fund Benefits Administration System (BAS)

MONTHLY IV&V STATUS REPORT

January 26, 2021 | Version 1.0

REPORT FINALIZED

February 23, 2021

ACCUITY

An independent member of
bakertilly
INTERNATIONAL

Table of Contents

ACCUITY

Document History

DATE	DESCRIPTION	AUTHOR	VERSION
02/05/21	Monthly IV&V Status Report Draft created	Julia Okinaka	0.0
02/23/21	Monthly IV&V Status Report updated based on comment submitted in Appendix F.	Julia Okinaka	1.0

ACCUITY

EXECUTIVE SUMMARY

BACKGROUND

The State of Hawaii (State), Employer-Union Health Benefits Trust Fund (EUTF) contracted Morneau Shepell Limited (Morneau Shepell) with their Ariel EAS technology solution for the Health Benefits Administration System Modernization Project (BAS Project) on June 1, 2020. EUTF also contracted Segal to provide project management, business process reengineering (BPR), organizational change management (OCM), and quality management. Segal's subcontractor, ICON Consulting (ICON), is responsible for data consulting and conversion.

The Office of Enterprise Technology Services (ETS) contracted Accuity LLP (Accuity) to provide Independent Verification and Validation (IV&V) services for the EUTF BAS Project. The goal of IV&V is to increase the probability of project success. The benefits of IV&V include identification of high-risk areas early and actionable recommendations.

Following IV&V's Initial Assessment Report, Monthly IV&V Status Reports are issued to update and evaluate continual project progress and performance. Pre and Post Go-Live Implementation Milestone Reports will be issued prior to and after the deployment/completion of major project milestones.

The project completed build and configuration for Interval 3 and commenced planning and execution for Interval 4. The focus of our IV&V activities for this report included the completion of two-month in-depth assessments of schedule and resource management, data conversion, and training.

The IV&V Dashboard on the following two pages provides a quick visual and narrative snapshot of both the project status and project assessment as of January 26, 2021. Refer to Appendix A: IV&V Criticality and Severity Ratings for an explanation of the ratings and Appendix E: Prior Findings Log for prior report findings.

QUALITY AND CLIENT CONFIDENCE

"Quality in a service or product is not what you put into it. It is what the customer gets out of it."

- Peter Drucker

PROJECT ASSESSMENT

SUMMARY RATINGS

OVERALL RATING

G

Minimal deficiencies were observed. Oversight may be needed to ensure risks stay low and project remains on track.

PROGRAM GOVERNANCE — **G**

PROJECT MANAGEMENT — **G**

TECHNOLOGY — **G**

CRITICALITY RATINGS

R HIGH   **Y** MEDIUM   **G** LOW   **NA** N/A

---

1 OPEN FINDING

SEVERITY RATINGS BY ASSESSMENT AREA

PROGRAM GOVERNANCE	PROJECT MANAGEMENT	TECHNOLOGY
0	0	1

■ HIGH ■ MED ■ LOW ■ PRELIM ■ POSITIVE

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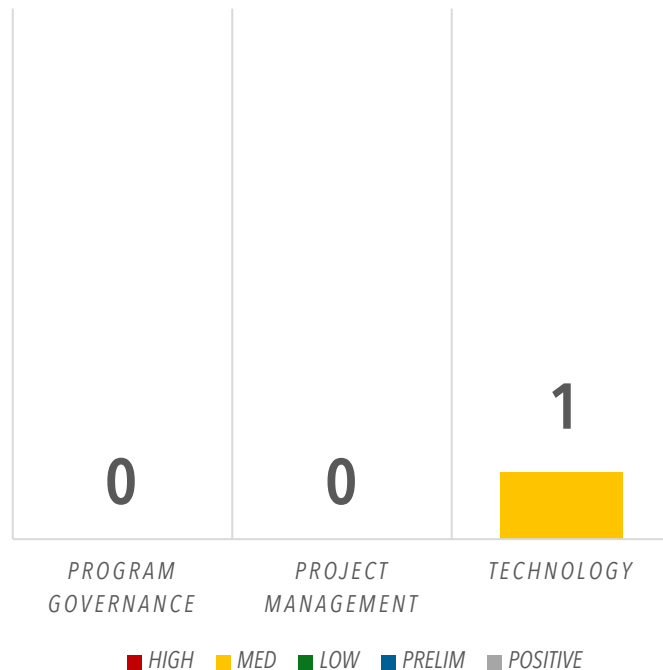
1 OPEN RECOMMENDATION

PROJECT BUDGET *

MILLIONS

$- $2 $4 $6 $8 $10 $12

■ INVOICED ■ TOTAL

*Only includes contracts.

PROJECT PROGRESS

34%
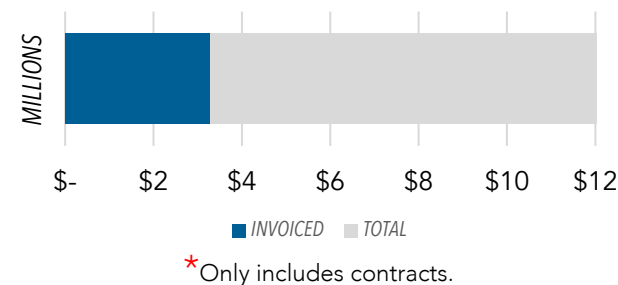
■ ACTUAL PROGRESS

PROJECT TIMELINE**

■ ORIGINAL ■ ACTUAL ▨ REVISED ■ DELAYED

PHASE 1: PROJ PLANNING

PHASE 2: FIT/GAP & DESIGN FOR GAPS

PHASE 3: PURCHASE AND INSTALLATION OF HARDWARE & SOFTWARE

PHASE 4: SYSTEM BUILD, CONFIGURATION, READINESS, & ROLLOUT

PHASE 5: READINESS & ROLLOUT

FEB 1, 2022 GO-LIVE

JUN 2020	DEC 2020	JUN 2021	DEC 2021
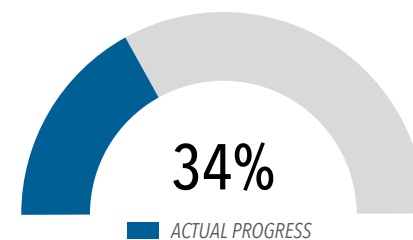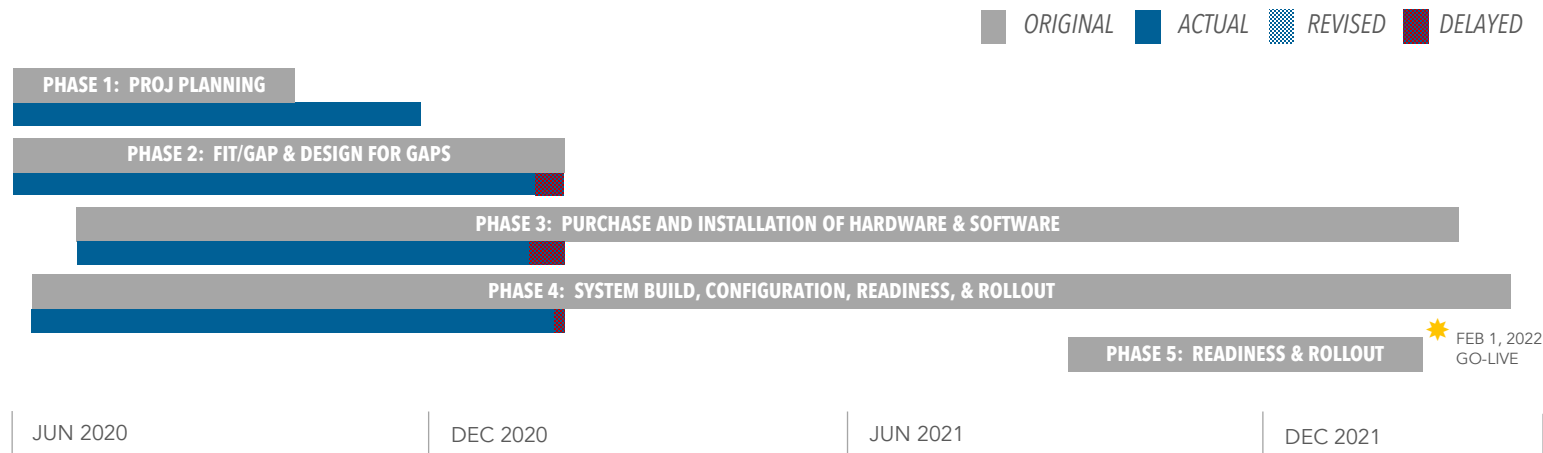
**Revised project schedule approved by EUTF.

ASSESSMENT AREA & RATINGS SUMMARY

NOV	DEC	JAN	IV&V ASSESSMENT AREA	IV&V OBSERVATIONS
G	G	G	*Overall*	The overall project rating reflects the project team's continued collaboration and continued joint execution of critical project activities. Two IV&V Assessment Areas declined from the prior report related to delays in data conversion and need for improved testing and quality processes. Project Schedule: The project is generally on schedule and enters a critical stage of the project preparing for training and User Acceptance Testing (UAT) for Segment 1. Although the project continues to have delays in data conversion and planned activities, there is currently no impact to the overall timeline. Project Costs: Project contract costs invoiced to-date approximated $3,300,000 and are within the budget. Quality: While some project and quality metrics continue to be monitored and reported, insufficient quality processes may impact the effectiveness of system demonstrations and ongoing quality of product delivery if not addressed timely (Refer to finding 2021.01.IT01). As training and testing begins, the project's Quality Plan and applicable metrics should be reviewed and communicated.
G	G	G	*Program Governance*	Project governance continues to work effectively with good project leadership. The Joint Steering Committee (JSC) convened to discuss project status, schedule, risks, and issues.
G	G	G	*Project Management*	The EUTF, Segal, and Morneau Shepell Project Managers and team members continue to work effectively together to accomplish key project activities and provide continuous feedback. An initial stakeholder survey was conducted, and the results are in the process of being analyzed and addressed. With the completion of its final Fit Gap sessions, the project involves project stakeholders through daily Joint Stand-up meetings. Morneau Shepell finalized the Train the Trainer Strategy for Segment 1 and delivered draft user training materials in preparation for in-person training sessions in February 2021. Morneau Shepell's high-level training approach and the segment specific train the trainer strategy document appears to adequately define their roles, responsibilities, deliverables, methods, and logistics. EUTF held a Carrier Session to provide an update on the project and review the features of the new Carrier Portal.
G	G	G↓	*Technology*	The project completed build and configuration for Interval 3 and commenced planning and execution for Interval 4. Data Conversion Cycle 1 is mostly completed; however, delivery of the results is delayed. Although data conversion extracts for billing data were delivered, some data corrections are needed, and Medicare and billing transaction history is still outstanding. The data reconciliation process proposed by ICON is still pending discussion and finalization. MS Segment 1 testing begins in late January 2021 and EUTF UAT testing is scheduled for February 2021. A demonstration of Interval 3 requirements was delivered; however, there were multiple system errors and problems with prepared sample transactions and data. Morneau Shepell should review the results of the demonstration through formal quality assurance practices and retrospectives to identify the root causes and take appropriate corrective actions (Refer to finding 2021.01.IT01).

FINDINGS AND RECOMMENDATIONS BY ASSESSMENT AREA

G **OVERALL RATING**

The overall rating is assigned based on the criticality ratings of the IV&V Assessment Categories and the severity ratings of any underlying findings (see Appendix A: IV&V Criticality and Severity Ratings). The tables below summarize the criticality ratings for each IV&V Assessment Category in each of the three major IV&V Assessment Areas. The criticality rating for 12 IV&V Assessment Categories are solid green. Two IV&V Assessment Areas related to schedule management and data conversion reflect downward green arrows. Quality Management is a solid yellow due to the need to improve testing and quality processes.

AT-A-GLANCE

POSITIVE Project Culture of continuous feedback

Review and Communicate **QUALITY PROCESSES and METRICS**

Focus on building **CUSTOMER CONFIDENCE**

NOV	DEC	JAN	PROGRAM GOVERNANCE
G	G	G	Governance Effectiveness
G	G	G	Benefits Realization

NOV	DEC	JAN	TECHNOLOGY
G	G	G	System Software, Hardware, and Integrations
G	G	G↓	Data Conversion
G	G↓	Y	Quality Management and Testing
G	G	G	Configuration Management
G	G	G	Security
NA	NA	NA	Deployment and Operations

NOV	DEC	JAN	PROJECT MANAGEMENT
G	G	G	Project Organization and Management
G	G	G	Requirements Management
G↓	G↓	G↓	Cost, Schedule, and Resource Management
G	G	G	Risk Management
G	G	G	Communications Management
G	G	G	Organizational Change Management (OCM)
G	G	G	Business Process Reengineering (BPR)
G	G	G	Training and Knowledge Transfer

G PROGRAM GOVERNANCE

NOV	DEC	JAN	IV&V ASSESSMENT CATEGORY	IV&V OBSERVATION	FINDINGS		
					NEW	OPEN	CLOSED
G	G	G	Governance Effectiveness	Project governance continues to work effectively with good project leadership. The Joint Steering Committee (JSC) convened to discuss project status, schedule, risks, and issues.	0	0	0
G	G	G	Benefits Realization	While some project and quality metrics continue to be monitored and reported, insufficient quality processes may impact the effectiveness of system demonstrations and ongoing quality of product delivery if not addressed timely (Refer to finding 2021.01.IT01). As training and testing begins, the project's Quality Plan and applicable metrics should be reviewed and communicated.	0	0	0

G PROJECT MANAGEMENT

Project Organization and Management

Requirements Management

Cost, Schedule, and Resource Management

Risk Management

Communications Management

Organizational Change Management

Business Process Reengineering

Training and Knowledge Transfer

NOV	DEC	JAN	IV&V ASSESSMENT CATEGORY	IV&V OBSERVATION	FINDINGS		
					NEW	OPEN	CLOSED
G	G	G	Project Organization and Management	The EUTF, Segal, and Morneau Shepell Project Managers and team members continue to work effectively together to accomplish key project activities and provide continuous feedback. The Project Managers promote and exercise positive project management practices.	0	0	3
G	G	G	Requirements Management	With the completion of its final Fit Gap sessions, the project involves project stakeholders through daily Joint Stand-up meetings to continue to clarify requirements and business rules. A demonstration of Interval 3 requirements was delivered; however, there were multiple system errors and problems with prepared sample transactions and data making it difficult to monitor quality compliance and requirements satisfaction. A more detailed tracking from the live system demos and user testing with traceability to the associated requirements has been discussed with Morneau Shepell to help with accountability and resolution.	0	0	0
G	G	G	Cost, Schedule, and Resource Management	Project contract costs invoiced to-date approximated $3,300,000 and are within the budget. The project is generally on schedule and enters a critical stage of the project preparing for training and UAT testing for Segment 1. Although the project continues to have delays in data conversion and planned activities, there is currently no impact to the overall timeline.	0	0	0

PROJECT MANAGEMENT

- Project Organization and Management
- Requirements Management
- Cost, Schedule, and Resource Management
- Risk Management
- Communications Management
- Organizational Change Management
- Business Process Reengineering
- Training and Knowledge Transfer

NOV	DEC	JAN	IV&V ASSESSMENT CATEGORY	IV&V OBSERVATION	FINDINGS		
					NEW	OPEN	CLOSED
G	G	G	Risk Management	New and existing risks and issues are tracked and openly discussed in project meetings and appropriately escalated to project management. Risks and issues continue to be evaluated for appropriate impact ratings, likelihood ratings, and risk response activities.	0	0	0
G	G	G	Communications Management	EUTF held a Carrier Session to provide an update on the project and review the features of the new Carrier Portal. For internal project communications, recurring project meetings are held for data conversion, requirements acceptance criteria, joint stand-up meetings, technical, etc. to increase the effectiveness of remote teams. IV&V will evaluate communication activities more in the upcoming month.	0	0	0
G	G	G	Organizational Change Management (OCM)	Segal delivered a Path to Go-Live presentation for key project stakeholders to discuss roles, project successes, training strategy, testing strategy, and project schedule. A BAS Project Survey was distributed and summarized for Project Management to review and address in the coming months. Segal delivered an OCM Plan that is currently under review. IV&V will evaluate OCM activities and artifacts more in the upcoming month.	0	0	0
G	G	G	Business Process Reengineering (BPR)	Segal delivered a BPR Plan that is currently under review. Business process improvements through system functionality continue to be explored and discussed.	0	0	0
G	G	G	Training and Knowledge Transfer	Morneau Shepell finalized the Train the Trainer Strategy for Segment 1 and delivered draft user training materials in preparation for in-person training sessions in February 2021. EUTF Managers and Supervisors will train their staff the following week in preparation for user acceptance testing.	0	0	0

(G) TECHNOLOGY

NOV	DEC	JAN	IV&V ASSESSMENT CATEGORY	IV&V OBSERVATION	FINDINGS		
					NEW	OPEN	CLOSED
G	G	G	System Software, Hardware, and Integrations	The project completed build and configuration for Interval 3 and commenced planning and execution for Interval 4. Morneau Shepell started reviewing the standard reporting tool and determining the need for custom reports. The monthly technical meeting convened providing further clarification on technical artifacts and activities. Meetings to discuss employer file interfaces and technical requirement acceptance criteria will begin at the end of January 2021.	0	0	1
G	G	G	Data Conversion	Data Conversion Cycle 1 is mostly completed; however, delivery of the conversion results are delayed. Although data conversion extracts for billing data was delivered, some data corrections are needed, and Medicare and billing transaction history is still outstanding. The data reconciliation process proposed by ICON is still pending discussion and finalization. Data conversion extracts continue to be delayed due to reliance on the current BAS Project vendor for data extraction support; however, there is no impact on Segment 1 UAT. EUTF, Morneau Shepell, and ICON continue to meet weekly to perform and clarify activities related to data groups, layouts, extracts, mapping, and data quality scripts/reports.	0	0	0

TECHNOLOGY

System Software, Hardware, and Integrations

Data Conversion

Quality Management and Testing

Configuration Management

Security

Deployment and Operations

TECHNOLOGY

- System Software, Hardware, and Integrations
- Data Conversion
- Quality Management and Testing
- Configuration Management
- Security
- Deployment and Operations

NOV	DEC	JAN	IV&V ASSESSMENT CATEGORY	IV&V OBSERVATION	FINDINGS		
					NEW	OPEN	CLOSED
G	G↓	Y	Quality Management and Testing	MS Segment 1 testing begins in late January 2021 and EUTF UAT testing is scheduled for February 2021. A demonstration of Interval 3 requirements was delivered; however, there were multiple system errors and problems with prepared sample transactions and data. Morneau Shepell should review the results of the demonstration through formal quality assurance practices and retrospectives to identify the root causes and take appropriate corrective actions (Refer to finding 2021.01.IT01).	1	1	0
G	G	G	Configuration Management	No significant changes for configuration management to report since last month.	0	0	0
G	G	G	Security	EUTF continues to review the security artifacts provided by Morneau Shepell including security documentation, integration catalogue, environment definitions, and key security policies and standards.	0	0	0
NA	NA	NA	Deployment and Operations	Deployment activities are not occurring at this stage of the project.	0	0	0

ACCUITY

FINDING #: **2021.01.IT01**	STATUS: **OPEN**	TYPE: **RISK**	SEVERITY: 2

TITLE: **NEED TO IMPROVE TESTING AND QUALITY PROCESSES**

Finding: Insufficient testing and quality processes may impact the effectiveness of system demonstrations, and client confidence and satisfaction

Industry Standards and Best Practices: Institute of Electrical and Electronics Engineers (IEEE) 12207 Software and Systems Engineering – Software life cycle processes, outlines best practices for life cycle stages including demonstration, product reviews, and other verification exercises. PMBOK Chapter 5 outlines best practices for implementing and delivering in an Agile environment.

Analysis: Periodic system demonstrations are one method for Morneau Shepell to share what functionality has been completed during the current interval. The requirements being demonstrated should be completely configured, tested, documented, and reviewed in advance of the system demonstration. If done successfully, system demonstrations not only help verify requirements and design, but also build confidence and customer satisfaction. The following problems were observed with the system demonstrations:
• Interval 1 and 2 functionalities were demonstrated through a combination of slideshows and live system walkthroughs. Based on feedback received from EUTF, Interval 3 functionalities were demonstrated in the live system; however, there were multiple system errors and problems with prepared sample transactions and data.
• Inability to show completeness of configuration to meet 100% of completed interval requirements.
• Testing and quality processes did not identify the issues encountered during the system demonstrations.
• Lack of a formal process to record incidents and problems during the demonstration, identify root causes, and track their resolution.
• The inability to clearly track issues to resolution in a timely manner may negatively impact client confidence.

Morneau Shepell is in the process of investigating the root causes of issues encountered during the system demonstrations.

Recommendation: 2021.01.IT01.R1 – *Evaluate testing and quality processes.*
• Use quality assurances processes to analyze results and issues to identify the root cause, improve tracking of issues to system functionality/requirements, make appropriate corrective actions, and record lessons learned.
• Morneau Shepell should review the demonstration results including anomalies encountered and identify follow-up actions.
• The project team should conduct a project retrospective after each interval demonstration to facilitate practical steps for improvement and promote improved stakeholder buy-in and confidence.

Appendix A: IV&V Criticality and Severity Ratings

IV&V CRITICALITY AND SEVERITY RATINGS

Criticality and severity ratings provide insight on where significant deficiencies are observed and immediate remediation or risk mitigation is required. Criticality ratings are assigned to the overall project as well as each IV&V Assessment Area and IV&V Assessment Category. Severity ratings are assigned to each risk or issue identified.

Criticality Rating

The criticality ratings are assessed based on consideration of the severity ratings of each related risk and issue within the respective IV&V Assessment Area and IV&V Assessment Category, the overall impact of the related findings to the success of the project, and the urgency of and length of time to implement remediation or risk mitigation strategies. Arrows indicate trends in the project assessment from the prior report and take into consideration areas of increasing risk and approaching timeline.   Up arrows indicate adequate improvements or progress made. Down arrows indicate a decline, inadequate progress, or incomplete resolution of previously identified findings. No arrow indicates there was neither improving nor declining progress from the prior report.

<table>
<tr>
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TERMS

RISK
An event that has not happened yet.

ISSUE
An event that is already occurring or has already happened.

</td>
</tr>
</table>

A **RED**, high criticality rating is assigned when significant severe deficiencies were observed and immediate remediation or risk mitigation is required.

A **YELLOW**, medium criticality rating is assigned when deficiencies were observed that merit attention. Remediation or risk mitigation should be performed in a timely manner.

A **GREEN**, low criticality rating is assigned when the activity is on track and minimal deficiencies were observed. Some oversight may be needed to ensure the risk stays low and the activity remains on track.

A **GRAY** rating is assigned when the category being assessed has incomplete information available for a conclusive observation and recommendation or is not applicable at the time of the IV&V review.

Severity Rating

Once risks are identified and characterized, Accuity will examine project conditions to determine the probability of the risk being identified and the impact to the project, if the risk is realized. We know that a risk is in the future, so we must provide the probability and impact to determine if the risk has a Risk Severity, such as Severity 1 (High), Severity 2 (Moderate), or Severity 3 (Low).

While a risk is an event that has not happened yet, an issue is something that is already occurring or has already happened. Accuity will examine project conditions and business impact to determine if the issue has an Issue Severity, such as Severity 1 (High/Critical Impact/System Down), Severity 2 (Moderate/Significant Impact), or Severity 3 (Low/Normal/Minor Impact/Informational).

Findings that are positive or preliminary concerns are not assigned a severity rating.

1   **SEVERITY 1:** High/Critical level

2   **SEVERITY 2:** Moderate level

3   **SEVERITY 3:** Low level

Appendix B: Industry Standards and Best Practices

STANDARD	DESCRIPTION
ADA	Americans with Disabilities Act
ADKAR®	Prosci ADKAR: Awareness, Desire, Knowledge, Ability, and Reinforcement
BABOK® v3	Business Analyst Body of Knowledge
DAMA-DMBOK® v2	DAMA International's Guide to the Data Management Body of Knowledge
HIPAA	Health Insurance Portability and Accountability Act of 1996
MARS-E v2.0	CMS Minimum Acceptable Risk Standards for Exchanges – Exchange Reference Architecture Supplement
MITA v3.0	Medicaid Information Technology Architecture
PMBOK® v6	Project Management Institute (PMI) Project Management Body of Knowledge
SWEBOK v3	Guide to the Software Engineering Body of Knowledge
TOGAF® v9.2	The Open Group Architecture Framework Standard
COBIT® 2019 Framework	Control Objectives for Information and Related Technologies Framework
IEEE 828-2012	Institute of Electrical and Electronics Engineers (IEEE) Standard for Configuration Management in Systems and Software Engineering
IEEE 1062-2015	IEEE Recommended Practice for Software Acquisition
IEEE 1012-2016	IEEE Standard for System, Software, and Hardware Verification and Validation
IEEE 730-2014	IEEE Standard for Software Quality Assurance Processes
ISO 9001:2015	International Organization for Standardization (ISO) Quality Management Systems – Requirements
ISO/IEC 25010:2011	ISO/International Electrotechnical Commission (IEC) Systems and Software Engineering – Systems and Software Quality Requirements and Evaluation (SQuaRE) – System and Software Quality Models
ISO/IEC 16085:2006	ISO/IEC Systems and Software Engineering – Life Cycle Processes – Risk Management

STANDARD	DESCRIPTION
IEEE 16326-2019	ISO/IEC/IEEE International Standard – Systems and Software Engineering – Life Cycle Processes – Project Management
IEEE 29148-2018	ISO/IEC/IEEE International Standard – Systems and Software Engineering – Life Cycle Processes – Requirements Engineering
IEEE 15288-2015	ISO/IEC/IEEE International Standard – Systems and Software Engineering – System Life Cycle Processes
IEEE 12207-2017	ISO/IEC/IEEE International Standard – Systems and Software Engineering – Software Life Cycle Processes
IEEE 24748-1-2018	ISO/IEC/IEEE International Standard – Systems and Software Engineering – Life Cycle Management – Part 1: Guidelines for Life Cycle Management
IEEE 24748-2-2018	ISO/IEC/IEEE International Standard – Systems and Software Engineering – Life Cycle Management – Part 2: Guidelines for the Application of ISO/IEC/IEEE 15288 (System Life Cycle Processes)
IEEE 24748-3-2012	IEEE Guide: Adoption of ISO/IEC TR 24748-3:2011, Systems and Software Engineering – Life Cycle Management – Part 3: Guide to the Application of ISO/IEC 12207 (Software Life Cycle Processes)
IEEE 14764-2006	ISO/IEC/IEEE International Standard for Software Engineering – Software Life Cycle Processes – Maintenance
IEEE 15289-2019	ISO/IEC/IEEE International Standard – Systems and Software Engineering – Content of Life Cycle Information Items (Documentation)
IEEE 24765-2017	ISO/IEC/IEEE International Standard – Systems and Software Engineering – Vocabulary
IEEE 26511-2018	ISO/IEC/IEEE International Standard – Systems and Software Engineering – Requirements for Managers of Information for Users of Systems, Software, and Services
IEEE 23026-2015	ISO/IEC/IEEE International Standard – Systems and Software Engineering – Engineering and Management of Websites for Systems, Software, and Services Information
IEEE 42010-2011	ISO/IEC/IEEE International Standard – Systems and Software Engineering – Architecture Description
IEEE 29119-1-2013	ISO/IEC/IEEE International Standard – Software and Systems Engineering – Software Testing – Part 1: Concepts and Definitions
IEEE 29119-2-2013	ISO/IEC/IEEE International Standard – Software and Systems Engineering – Software Testing – Part 2: Test Processes
IEEE 29119-3-2013	ISO/IEC/IEEE International Standard – Software and Systems Engineering – Software Testing – Part 3: Test Documentation
IEEE 29119-4-2015	ISO/IEC/IEEE International Standard – Software and Systems Engineering – Software Testing – Part 4: Test Techniques

STANDARD	DESCRIPTION
IEEE 1484.13.1-2012	IEEE Standard for Learning Technology – Conceptual Model for Resource Aggregation for Learning, Education, and Training
ISO/IEC TR 20000-11:2015	ISO/IEC Information Technology – Service Management – Part 11: Guidance on the Relationship Between ISO/IEC 20000-1:2011 and Service Management Frameworks: ITIL®
ISO/IEC 27002:2013	Information Technology – Security Techniques – Code of Practice for Information Security Controls
SAML v2.0	Security Assertion Markup Language v2.0
SoaML v1.0.1	Service Oriented Architecture Modeling Language
CMMI-DEV v1.3	Capability Maturity Model Integration for Development
FIPS 199	Federal Information Processing Standard (FIPS) Publication 199, Standards for Security Categorization of Federal Information and Information Systems
FIPS 200	FIPS Publication 200, Minimum Security Requirements for Federal Information and Information Systems
NIST 800-53 Rev 5	National Institute of Standards and Technology (NIST) Security and Privacy Controls for Federal Information Systems and Organizations
NIST Cybersecurity Framework v1.1	NIST Framework for Improving Critical Infrastructure Cybersecurity
LSS	Lean Six Sigma

Appendix C: IV&V Monthly Status

MAIN IV&V ACTIVITIES AND ACCOMPLISHMENTS

MAIN IV&V ACTIVITIES AND ACCOMPLISHMENTS
Reviewed Training User Guide drafts, status and workplan updates, survey results, and other project artifacts
Participated in Hawaii EUTF project management, acceptance criteria, data conversion, technical, and joint stand-up meetings
Presented at Joint Steering Committee Meetings
Finalized December Monthly IV&V Status Report and submitted Draft January 2021 Monthly IV&V Status Report

KEY UPCOMING IV&V DELIVERABLES

KEY IV&V DELIVERABLES	DRAFT DUE DATE	DRAFT SUBMITTED	FINAL SUBMITTED
January 2021 Monthly IV&V Status Report	02/05/21	02/05/21	-

PRIOR IV&V APPROVED DELIVERABLES

DELIVERABLE	AS OF DATE	APPROVED DATE
IV&V Project Management Plan (IVVP)	N/A	07/22/20
Initial Assessment Report	06/26/20	07/29/20
July 2020 Monthly IV&V Status Report	07/24/20	08/20/20
August 2020 Monthly IV&V Status Report	08/25/20	09/25/20
September 2020 Monthly IV&V Status Report	09/25/20	10/19/20
October 2020 Monthly IV&V Status Report	10/27/20	11/25/20
November 2020 Monthly IV&V Status Report	11/25/20	12/14/20
December 2020 Monthly IV&V Status Report	12/22/20	02/02/21

Appendix D: Interviews, Meetings, and Documents

MEETINGS

DATE	MEETING DESCRIPTION
12/28/20	EUTF/ICON/MS Data Conversion Weekly Meeting
01/04/21	EUTF/ICON/MS Data Conversion Weekly Meeting
01/06/21	EUTF - Joint Weekly Project Team Meeting
01/11/21	EUTF/ICON/MS Data Conversion Weekly Meeting
01/11/21	Monthly IV&V Update meeting
01/12/21	EUTF - Joint Stand-up Meeting
01/12/21	EUTF - Joint Weekly Project Team Meeting
01/13/21	EUTF - Joint Stand-up Meeting
01/13/21	Requirements Acceptance Criteria
01/14/21	EUTF - Joint Stand-up Meeting
01/15/21	EUTF - Joint Stand-up Meeting
01/15/21	EUTF - F12.22 & T11.08 - Knowledge Management Repository Discussion
01/19/21	EUTF - Joint Weekly Project Team Meeting
01/20/21	EUTF - Joint Stand-up Meeting
01/20/21	Requirements Acceptance Criteria
01/21/21	Carrier Meeting: New BAS and Carrier Portal
01/22/21	EUTF - Reporting Matrix
01/22/21	EUTF - BAS Joint Monthly Steering Committee Meeting

MEETINGS (CONTINUED)

DATE	MEETING DESCRIPTION
01/25/21	EUTF - Joint Stand-up Meeting
01/25/21	EUTF/ICON/MS Data Conversion Weekly Meeting
01/25/21	EUTF - Interrval 3 Demo
01/26/21	EUTF - Joint Stand-up Meeting
01/26/21	EUTF - Joint Weekly Project Team Meeting
01/26/21	EUTF - Training Material Review

DOCUMENTS

TYPE	DOCUMENT
Morneau Shepell Proposal	EUTF BAS RFP 20-002- Morneau Shepell BAFO Response to BAS Project Oral Presentation Demo Question Requests - FINAL
Request for Proposal	State of Hawaii EUTF BAS RFP No. RFP-20-001 for Project Management and Consulting Services (Release Date 09/25/19)
Segal Proposal	BAFO for RFP No. RFP-20-001 for Project Management and Consulting Services (Effective 03/16/20)
Request for Proposal	State of Hawaii ETS RFP-19-010 EUTF BAS IV&V
Accuity Proposal	Accuity LLP EUTF IVV Proposal RFP-19-010 FINAL
Contract	Morneau Shepell Limited Contract (effective 06/01/20)
Contract	Segal Company Contract (effective 06/01/20)
Contract	Accuity Contract (effective 06/01/20)
Governance	EUTF – Joint SC (Steering Committee) Meeting – 2021-01-22
Budget	New BAS Budget Worksheet
Project Management	Hawaii EUTF Morneau Shepell Project Kick-Off – FINAL (06/04/20)

DOCUMENTS (CONTINUED)

TYPE	DOCUMENT
Project Management	Path to Go Live presentation 20210105
Project Management	EUTF – Weekly Project Team Status – 2020-01-12
Project Management	EUTF – Weekly Project Team Status – 2020-01-19
Project Management	EUTF – Weekly Project Team Status – 2020-01-26
Project Management	20201231 Segal Monthly Status Report
Project Management	20210111Segal EUTF Status Report
Project Management	EUTF Segal Deliverable Project Schedule 20210119
Project Management	Hawaii EUTF_ICON Status Report – Monthly December 2020
Project Management	Hawaii EUTF_ICON Status Report – Week Ending 01 08 2021
Project Management	Hawaii EUTF_ICON Status Report – Week Ending 01 15 2021
Project Management	EUTF Data Quality – Migration Project Plan V14
Risk and Issues	EUTF – CRAID Log
Schedule	Hawaii (EUTF) – BAS Work Plan
Discovery Session	EUTF – Client RTM
Deliverable	Hawaii EUTF – BAS Implementation - Charter, Scope and Management Plan
Deliverable	EUTF - Data Migration Strategy Plan
Deliverable	Ariel EAS BAS Architecture Overview
Deliverable	Ariel EAS Security Plan – EUTF
Deliverable	EUTF Interface Catalog
Deliverable	Environment Definition - EUTF
Deliverable	EUTF – UAT Testing Strategy – Segment 1
Deliverable	EUTF – Train the Trainer Strategy – Segment 1

DOCUMENTS (CONTINUED)

TYPE	DOCUMENT
Deliverable	EUTF Admin – Events Guide
Deliverable	EUTF Admin – Navigation Guide
Deliverable	EUTF Member Portal Guide
Deliverable	EUTF OCM and BPR Plan
Security	2019 Ariel SOC 2 Final Report
Security	Acceptance Use Policy
Security	Data Classification Policy
Security	Encryption Policy
Security	Information Security Policy and Standards
Security	Password Policy
Security	Patch_Deployment_Process_v1.16-EN
Security	Vulnerability Management_v1.09b
Data Conversion	EUTF Conversion Data Group 1
Data Conversion	EUTF – Data Migration Validation
Data Conversion	DQCP Summary
Carrier Presentation	EUTF Carrier Meeting 20210121 Final
Survey	EUTF New BAS Project Survey 2021 Summary Report

Appendix E: Prior Findings Log

ASSESSMENT CATEGORY	FINDING ID	TYPE	ORIGINAL SEVERITY	CURRENT SEVERITY	FINDING	ANALYSIS	RECOMMENDATION ID	RECOMMENDATION	SUPPLEMENTAL RECOMMENDATION	FINDING STATUS	FINDING STATUS UPDATE	CLOSED DATE	CLOSURE REASON
System Software, Hardware, and Integrations	2020.11.IT01	Positive	N/A	N/A	The Morneau Shepell technology team's flexibility and collaboration demonstrates their commitment to be a trusted partner to EUTF to build a robust solution that fits EUTF requirements.	The Morneau Shepell technology team: • Works collaboratively with EUTF to understand the technical requirements, answer questions, and adjust the solution to find the best fit for EUTF • Demonstrates a willingness to be transparent and openly share Morneau Shepell's IT practices, policies, standards, and personnel roles and responsibilities to develop, maintain, secure, operate, and support the system • Provides documentation and ongoing clarification of the Ariel BAS solution's infrastructure, security, and disaster recovery architecture • Through the involvement of key IT resources, shows commitment to the overall success of the project and being a trusted partner with the State of Hawaii This approach has helped EUTF gain comfort with the Morneau Shepell-managed Azure environment and how the solution aligns with EUTF's security, availability, system operations, and confidentiality requirements.	N/A	N/A for positive findings.	N/A for positive findings.	Closed	N/A	12/22/2020	Closed as this is a positive finding.
Project Organization and Management	2020.08.PM01	Risk	Low	Low	The COVID-19 pandemic may impact project schedule, resources, and costs.	The COVID-19 pandemic creates uncertainty with rapidly evolving government responses and restrictions and changing circumstances. The following a summary of the related events and facts: • A second stay-at-home/work-at-home order went into effect August 27, 2020 for Honolulu City and County and will last for at least 14 days. EUTF employees are deemed essential. All key EUTF project employees will have the ability and equipment to work from home in the event of an office closure by the end of September. All project contractors already work remotely effectively. • The State is reviewing budgets and positions to make significant changes due to anticipated revenue shortfalls. The State also implemented a hiring freeze and is contemplating furloughs or salary cuts for State workers. • EUTF has several open positions that could play essential roles on the project. EUTF's request to fill these positions is pending. • The project timeline and go-live dates do not have much room to be extended due to the annual benefit plan enrollment season. Any delays that postpone go-live beyond the enrollment season could impact project costs.	2020.08.PM01.R1	Formulate processes for how to respond to COVID-19 impacts to the project.	• EUTF, project contractors, and subcontractors should timely complete a back-up resources matrix including a list of key project resources, their key primary functions, and potential backup resources in case of their inability to work. • Assess COVID-19 direct and indirect impacts to the project and prepare contingency plans for possible scenarios. • Ensure all key EUTF project team members have the necessary access, equipment, and technology to work remotely effectively.	Closed	9/25/20: The COVID-19 finding has been partially mitigated by ensuring all key EUTF project team members have computers and access to work remotely and additional headcount approved to support the project and operations. Project tools and practices such as a joint project SharePoint site and regular, recurring meetings also help the teams work effectively together from remote locations. The project contractors agreed to develop back-up resource matrices. 10/27/20: EUTF, Morneau Shepell, Segal, and ICON worked together to identify back-up resources for each key project team member to ensure resource continuity.	10/27/2020	Closed as all recommendations were adequately addressed. A COVID-19 risk has been added to the project's risk log so direct and indirect COVID-19 related impacts will be continuously assessed.
Project Organization and Management	2020.07.PM02	Risk	Moderate	Moderate	Segal's contract contains responsibilities and deliverables beyond oversight of Morneau Shepell, including OCM, BPR, and quality management. Segal's project deliverables, schedule, and processes have yet to be formally documented and scheduled, which could impact the execution of Segal, ICON, and EUTF responsibilities and activities.	Segal was contracted to provide various project management, OCM, BPR, data conversion, and quality management services for EUTF. Segal is effectively monitoring and reviewing Morneau Shepell activities and deliverables but does not yet have a schedule for ICON's and their own independent deliverables for this project. Segal established a dashboard and regularly submits reports to EUTF; however, thus far, these reports focus mainly on Morneau Shepell and do not include sufficient updates regarding Segal and ICON's own activities, progress, and risks. Additionally, Segal's processes in the areas of schedule, resource, cost, and quality management are still being developed and documented. Segal's deliverables include a BPR and OCM plan. Segal prepared a presentation, developed a tracking tool, and held a workshop to explain their BPR and OCM methodology, however, we are not aware of whether a formally documented plan or schedule of BPR and OCM tasks and resources has been prepared and delivered to EUTF for review. Further discussion of purpose and expectations for this deliverable is still needed. ICON is responsible for data cleansing and data conversion activities. The project team identified two risks and one issue and are experiencing some delays related to data conversion. Clarifying ICON deliverables, schedule, processes, and reporting may help to prevent further issues and delays. Possible root causes or contributing factors are an aggressive project pace and competing priorities. Both the Segal Project Manager and the EUTF Project Manager are extremely hard-working and may not have adequate time to participate in on-going Discovery Sessions and perform all of the required project management tasks. EUTF and Segal will need to work together to establish appropriate project management processes and clarify the priority of deliverables and schedules. Although this finding is reported under the Project Organization and Management IV&V Assessment Category, this finding also impacts the criticality ratings for the Cost, Schedule, and Resource Management; OCM; BPR; Data Conversion; and Quality Management and Testing categories.	2020.07.PM02.R1	Clarify Segal and ICON deliverables.	• Clarify purpose, content, and expectations of each of the contracted deliverables. • Consider whether contracted deliverables still make sense based on project needs.	Closed	08/25/20: Segal and ICON made good progress on clarifying deliverables and project activities related to their responsibilities. EUTF, Segal, and IV&V started monthly check-in meetings and discussed Segal's "just-in-time" approach to OCM and BPR. The EUTF PM confirmed approval of this approach with preliminary activities occurring before OCM and BPR plans are formalized. ICON clarified their Data Quality Check Point (DQCP) process and preliminary results from defined business rules. Accuity closed recommendation 2020.07.PM02.R1 as IV&V received sufficient clarification of Segal and ICON deliverables. Segal provided a deliverables schedule and ICON provided a work plan tracking the status of tasks. Segal provided a high level deliverable project schedule with duration, status, start and finish dates, and resources. The specific resources and tasks were not identified for key activities such as OCM and BPR; however, Segal noted that they would develop more detailed plans based on resource availability and bandwidth starting in December 2020. Other EUTF tasks are currently tracked in the RTM, Segal's Dashboard, and independently by EUTF project team members. Accuity closed recommendation 2020.07.PM02.R2 as IV&V received sufficient clarification of Segal and ICON's schedules for this stage of the project. More clarity was provided for key processes on OCM, quality, data validation, and migration. Segal delivered a draft Quality Management Plan on 8/25/20 and scheduled a test planning meeting in September. ICON held a meeting to review their DQCP process and provided a high level DQCP Validation Consolidation process summary. Accuity will continue to evaluate the formalization of processes including BPR and quality management. 09/25/20: Quality processes and metrics are well-defined and communicated through the draft Quality Management Plan. BPR activities continued through meetings, Fit Gap sessions, and solution demonstrations. Data migration and cleansing processes were more clearly defined through the draft Data Migration Plan, weekly data conversion meetings and DQCP / Validation meetings.	9/25/2020	Closed as the Segal and ICON deliverables, activities and schedules have been clarified and approved by EUTF. In addition, key processes were defined and communicated through meetings, plans and metrics. Segal and ICON's status and activities are included in reports to the Joint Steering Committee.
							2020.07.PM02.R2	Develop a project schedule to manage Segal, ICON, and EUTF tasks.	• Provide the appropriate detail of tasks, durations, due dates, milestones, and deliverables for various parties.				
							2020.07.PM02.R3	Develop and clarify Segal, ICON, and EUTF processes.	• Key processes include resource and schedule management, cost management, BPR, OCM, quality management, data cleansing, and data conversion. • Consider including Segal, ICON, and EUTF's status and metrics in existing reports and dashboards. • Consider including Segal, ICON, and EUTF status and activities in recurring project management meetings to promote even greater project cohesion.				

ASSESSMENT CATEGORY	FINDING ID	TYPE	ORIGINAL SEVERITY	CURRENT SEVERITY	FINDING	ANALYSIS	RECOMMENDATION ID	RECOMMENDATION	SUPPLEMENTAL RECOMMENDATION	FINDING STATUS	FINDING STATUS UPDATE	CLOSED DATE	CLOSURE REASON
Project Organization and Management	2020.07.PM01	Positive	N/A	N/A	The project team continues to work collaboratively and support a culture of open communication and continuous improvement amongst all parties.	The project team members have: • Encouraged EUTF SMEs to openly discuss areas of confusion and request for improvements to working sessions. • Listened to feedback from project team members and timely implemented improvements to project processes (e.g., including incorporating solution demonstrations and introducing project team members). • Openly discussed possible solutions to address areas of concern. • Continue to proactively ask for feedback after meetings and working sessions. • Openly discussed project risks and issues with all project team members. This approach has helped team members to build a high level of comfort with each other and has contributed to a smoother execution of the planning phase of the project.	N/A	N/A for positive findings.	N/A for positive findings.	Closed	N/A	8/25/2020	Closed as this is a positive finding.

Appendix F: Comment Log on Draft Report

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Hawaii EUTF BAS Project: IV&V Document Comment Log				
ID #	Page #	Comment	Commenter's Organization	Accuity Resolution
1	12	Page 12 notes that "Interval 1 and 2 functionalities were demonstrated primarily through slideshows." We feel that "primarily" is a bit too broad a term as the system was used to demonstrate functionalities for much of the demo. We feel it would be more accurate to say, "Interval 1 and 2 functionalities were demonstrated partially through slideshows."	Morneau Shepell	Sentence updated to state, "Interval 1 and 2 functionalities were demonstrated through a combination of slideshows and live system walkthroughs."
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