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DEPT. COMM. NO. 78

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December 5, 2019

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

The Honorable Scott K. Saiki,
Speaker, and
Members of The House of Representatives
Thirtieth 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 IV&V report the Office of Enterprise Technology Services received for the State of Hawaii Department of Labor& Industrial Relations Disability Compensation Division's Modernization Project – Electronic Case Management System.

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

Sincerely,

Douglas Murdock (Dec 6, 2019)

DOUGLAS MURDOCK
Chief Information Officer
State of Hawai'i

Attachment (1)

STATE OF HAWAII
DEPARTMENT OF LABOR &
INDUSTRIAL RELATIONS (DLIR)

Disability Compensation Division's Modernization Project – Electronic Case Management System (eCMS)

MONTHLY ON-SITE IV&V REVIEW REPORT

September 20, 2019 | Version 1.0

REPORT FINALIZED

November 12, 2019

QUALITY.
INTEGRITY.
INSIGHT.

ACcuity LLP
CERTIFIED
PUBLIC
ACCOUNTANTS

An independent member of bakertilly INTERNATIONAL

Table of Contents

Document History

DATE	DESCRIPTION	AUTHOR	VERSION
10/04/19	Monthly On-site IV&V Review Report Draft created	Julia Okinaka	0.0
11/12/19	Monthly On-site IV&V Review Report updated with DLIR comments (See Appendix E: Comment Log on Draft Report), project budget and costs on page 4 and 5, reference names in Appendix C, clarifying language in Appendix A, and general formatting and punctuation corrections throughout report.	Julia Okinaka	1.0

EXECUTIVE SUMMARY

BACKGROUND

The State of Hawaii, Department of Labor and Industrial Relations (DLIR) contracted DataHouse Consulting, Inc. (DataHouse) for the Disability Compensation Division's (DCD) Electronic Case Management System Project (eCMS Project). DLIR contracted Accuity LLP (Accuity) to provide Independent Verification and Validation (IV&V) services for the eCMS Project.

The Initial On-Site IV&V Review Report (IV&V Initial Report) was issued on August 30, 2019 and provided an initial assessment of project health as of June 30, 2019. Refer to the full Initial Report for additional background information on the eCMS Project and IV&V. The Monthly On-Site IV&V Review Reports (IV&V Monthly Reports) build upon the Initial Report to update and continually evaluate project progress and performance.

The focus of our IV&V activities for this report included an evaluation of the technical solution design, requirements documentation, communication activities, and risk management processes.

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 September 20, 2019. Additional explanation is included in the Findings and Recommendations by Assessment Area for new findings and in the Appendix D: Prior Findings Log for prior report findings. Refer to Appendix A: IV&V Criticality and Severity Ratings for an explanation of the ratings.

PROJECT PROGRESS

"Progress
lies not in
enhancing what is,
but in
advancing
toward what
will be."

- Khalil Gibran

PROJECT ASSESSMENT

AS OF SEPTEMBER 20, 2019

SUMMARY RATINGS

OVERALL RATING

Y

Trending up, however, deficiencies were observed that merit attention and remediation in a timely manner.

PROGRAM GOVERNANCE — Y

PROJECT MANAGEMENT — Y

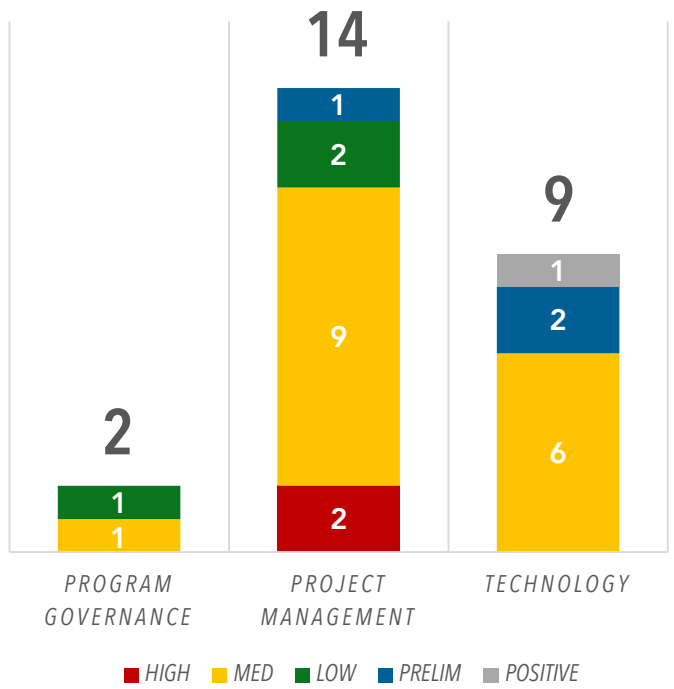
TECHNOLOGY — Y

CRITICALITY RATINGS

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

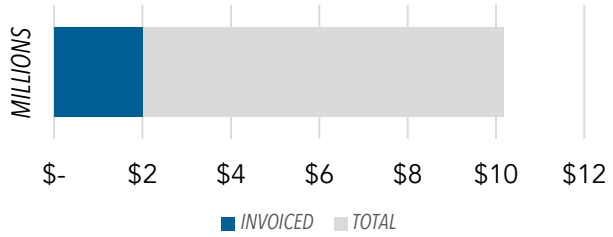
25 OPEN FINDINGS

SEVERITY RATINGS BY ASSESSMENT AREA



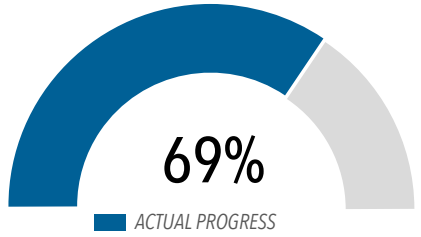
37 OPEN RECOMMENDATIONS

PROJECT BUDGET*

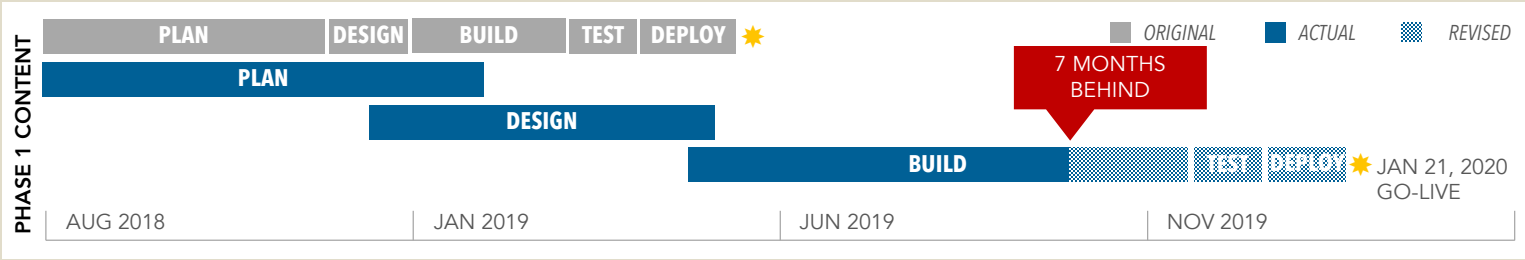


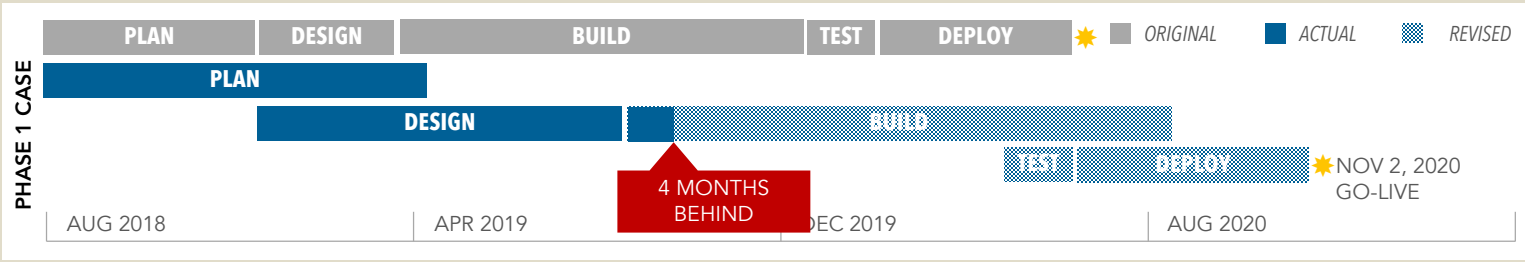
* Only includes contracts. IV&V unable to validate total budget.

PROJECT PROGRESS (PHASE 1)**



** As of 9/15/19. IV&V unable to verify %.





ASSESSMENT AREA & RATINGS SUMMARY

AS OF SEPTEMBER 20, 2019

INITIAL	SEPT	IV&V ASSESSMENT AREA	IV&V OBSERVATIONS
R	Y	*Overall*	The criticality ratings for the three IV&V Assessment Areas are all trending upwards. DLIR and DataHouse's efforts have built positive momentum on the project. Five risks and issues from the Initial Report were closed and ten IV&V Assessment Categories improved or are trending up. *Project Schedule:* The go-live date for Content Management was revised to January 21, 2020. The schedule change was attributed to the delays in finalizing the Workers' Compensation (WC) forms and to factor in stakeholder schedules. Accuity is unable to validate the project progress percentage or assess the impact of schedule variance due to the current schedule management practices (refer to finding 2019.07.PM13). *Project Costs:* Project contract costs invoiced to date approximated $2,025,000. Accuity is unable to validate total project budget or assess cost variances due to the current cost management practices (refer to finding 2019.07.PM12). *Quality:* DLIR is in the process of finalizing success and quality metrics (refer to findings 2019.07.PG05 and 2019.07.IT05). Accuity will evaluate progress towards achieving project goals when the metrics are finalized.
Y	Y	*Program Governance*	The eCMS Project Executive Steering Committee (ESC) was formed with representatives from the eCMS DLIR Admin Group, the Office of Enterprise Technology Services (ETS), DLIR Electronic Data Processing Systems Office (EDPSO), DataHouse, and Accuity. DLIR is also forming a DLIR Information Technology (IT) Steering Committee to provide oversight to all DLIR IT projects including the eCMS Project. DLIR is in the process of formalizing project success metrics. The DCD Executive Sponsor continued to play an active and visible role in the project.
R	Y	*Project Management*	DataHouse and DLIR are working more collaboratively together and made progress on clarifying roles and responsibilities, adding details to requirements documentation and the project schedule, identifying and discussing risks and issues, and developing internal and external stakeholder communications. Further improvements to the requirements management, cost management, and schedule management processes are most critical for effective project management. Other processes for approving project changes, developing risk mitigation plans, integrating business process improvements, and managing organizational change also need to be refined.
R	Y	*Technology*	Both the Content Management and Case Management solution are currently in development. DataHouse team members demonstrated commitment to project success and greatly contributed to securing AWS as the replacement Content Management hosting infrastructure solution and mitigating or remediating critical technology risks and issues. DataHouse provided additional details in design documents and on integrations and preliminary evidence of integration viability. The quality management, test, security managements, and configuration management plans need to be updated or finalized.

FINDINGS AND RECOMMENDATIONS BY ASSESSMENT AREA

OVERALL RATING

The overall rating is assigned based on the criticality ratings of the IV&V Assessment Categories and the severity ratings of the 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. Ten IV&V Assessment Categories improved from the prior report. One category declined from the prior period primarily due to the quickly approaching timeline for those activities and the need for the plan and processes to be finalized.

AT-A-GLANCE

CONTINUE positive project momentum

Ensure requirements are **COMPLETE** and **TRACEABLE**

Set **MEASURABLE** success metrics

REFINE processes

INITIAL	SEPT	PROGRAM GOVERNANCE
Y	Y	Governance Effectiveness
R	Y	Benefits Realization

INITIAL	SEPT	TECHNOLOGY
R	Y	System Software, Hardware, and Integrations
R	Y	Design
Y	Y	Data Conversion
Y	Y	Quality Management and Testing
Y	Y	Configuration Management
Y	Y	Security

INITIAL	SEPT	PROJECT MANAGEMENT
R	Y	Project Organization and Management
R	R	Scope and Requirements Management
R	R	Cost, Schedule, and Resource Management
R	Y	Risk Management
R	Y	Communications Management
Y	Y	Organizational Change Management
Y	Y	Business Process Reengineering
NA	NA	Training and Knowledge Transfer

PROGRAM GOVERNANCE

Governance Effectiveness

Benefits Realization

PROGRAM GOVERNANCE

INITIAL	SEPT	IV&V ASSESSMENT CATEGORY	IV&V OBSERVATION	FINDINGS		
				NEW	OPEN	CLOSED
Y	Y	Governance Effectiveness	The eCMS Project Executive Steering Committee (ESC) was assembled with the first meeting held in September 2019. ESC meetings will occur monthly and establishes an avenue for members to provide insight and guidance on risks, issues, and key decisions. DLIR is also forming a DLIR IT Steering Committee to provide oversight to all DLIR IT projects including the eCMS Project with monthly meetings to begin at the end of September 2019. The DCD Executive Sponsor continued to play an active and visible role in the project.	0	1	3
R	Y	Benefits Realization	DLIR assigned a resource to oversee project success metrics and began to develop project success metrics. DLIR has a multi-year plan to align the current disability compensation statutes to support the achievement of project success metrics and modernization objectives.	0	1	1

PROJECT MANAGEMENT

Project Organization and Management

Scope and Requirements Management

Cost, Schedule, and Resource Management

Risk Management

Communication Management

Organizational Change Management

Business Process Reengineering

Training and Knowledge Transfer

PROJECT MANAGEMENT

INITIAL	SEPT	IV&V ASSESSMENT CATEGORY	IV&V OBSERVATION	FINDINGS		
				NEW	OPEN	CLOSED
R	Y	Project Organization and Management	DataHouse included DLIR in more development meetings and DLIR and DataHouse are working more collaboratively for project planning, execution, and deliverable review. DataHouse began to delineate some DLIR responsibilities for data conversion, however, clarification of roles and responsibilities is still needed in areas such as testing, quality management, and Scrum Product Owners. Project changes were not managed in accordance with prescribed processes.	1	4	2
R	R	Scope and Requirements Management	DataHouse improved requirements documentation and the Requirements Traceability Matrix (RTM) to include more detailed and specific requirements. DataHouse plans to make further enhancements to the RTM to ensure requirements are complete and improve traceability. Additionally, the processes of approving new requirements and prioritizing requirements within the system development sprints need to be formalized. Requirements management is critical due to its impact on system development, testing, and ultimately system acceptance.	0	1	0
R	R	Cost, Schedule, and Resource Management	DataHouse added details to the project schedule, however, the schedule still does not include sufficient details to assess the over-allocation of resources, identify critical paths, or accurately report project progress. Cost management and resource management processes have not yet been defined.	1	4	0

PROJECT MANAGEMENT

Project Organization and Management

Scope and Requirements Management

Cost, Schedule, and Resource Management

Risk Management

Communication Management

Organizational Change Management

Business Process Reengineering

Training and Knowledge Transfer

INITIAL	SEPT	IV&V ASSESSMENT CATEGORY	IV&V OBSERVATION	FINDINGS		
				NEW	OPEN	CLOSED
R	Y	Risk Management	DLIR assigned a DLIR Risk Manager. DLIR and DataHouse began to identify additional risks and issues and discuss those at project management and governance meetings. The risk management process needs to be further refined to combine the DLIR and DataHouse risk logs, assign risk owners, and develop mitigation or remediation plans for each risk or issue.	0	1	0
R	Y	Communications Management	DLIR scheduled a meeting for internal DLIR stakeholders in October 2019 to provide an update on project activities and a preview of the planned Case Management system. DLIR plans to use the DLIR DCD website to communicate with internal and external stakeholders and began to work on website design and content.	0	2	0
Y	Y	Organizational Change Management (OCM)	DLIR began to establish stakeholder communication channels which can serve as a platform for OCM activities, however, a structured OCM approach to ensure communication activities are executed with an OCM focus has not yet been implemented.	0	1	0
Y	Y	Business Process Reengineering (BPR)	DLIR plans to identify any business areas that still need BPR to assess impact on system development and sprint planning. A process or tool to track BPR changes for integration to OCM, communication, and training activities has not been developed.	0	1	0
NA	NA	Training and Knowledge Transfer	Training and knowledge transfer activities are not occurring at this stage of the project. The Content Management training plan is targeted for completion in November 2019.	0	0	0

FINDING #: 2019.09.PM01	STATUS: OPEN	TYPE: ISSUE	SEVERITY: 2

TITLE: CHANGE MANAGEMENT PROCESS NOT FOLLOWED

Finding: The documented change management process was not followed as prescribed.

Industry Standards and Best Practices: PMI PMBOK Chapter 4 states that changes may be initiated verbally but should be documented in the change management system. Change requests should include information about the impact to project costs, schedule, resources, and risks. A benefit of a formalized change management process is to ensure that changes are managed in an integrated manner that considers impacts to overall project objectives or plans.

Analysis: The Project Management Plan (version 1.3) documents the change management process that includes Change Requests, impact assessments, and a Change Log. The change to AWS (refer to finding 2019.07.IT01 in Appendix D) and the revision of the Content Management go-live date were approved by DLIR but not documented in Change Requests or a Change Log. Additionally, the change management process does not have built in mechanisms to ensure that impacted documents are updated for the change and changes are appropriately communicated to impacted stakeholders.

Recommendation: 2019.09.PM01.R1 – *Document changes in Change Requests, with an impact assessment, and the Change Log in accordance with the Project Management Plan.*

2019.09.PM01.R2 – *Refine the change management process for greater clarity and effectiveness.*

- Consider setting thresholds or criteria for changes that go through different approval processes.
- Define the different approval processes (e.g., project manager, product owners, change control board, steering committee).
- Implement additional columns in the Change Log to ensure updates are made to all impacted project plans, documents, or deliverables and changes are communicated to all impacted stakeholders.

FINDING #: 2019.09.PM02	STATUS: OPEN	TYPE: PRELIMINARY	SEVERITY: N/A

TITLE: UNDEFINED RESOURCE MANAGEMENT PROCESS

Finding: PRELIMINARY CONCERN – Undefined resource management processes.

Industry Standards and Best Practices: PMI PMBOK Chapter 9 outlines resource management best practices for estimating resource requirements, acquiring resources, developing resources, and managing resources.

Analysis: The Project Management Plan (version 1.3) includes a human resource management section that outlines the high-level roles and responsibilities of various team members but does not define a process for how resources will be managed. This will become more critical for DLIR as the project gears up for more resource demanding activities including data conversion, testing, and sprint reviews. Developing processes to track and quantify upcoming resource needs, identify available resources, procure or obtain commitments of resources, manage resource schedules, communicate with assigned resources and their supervisors, and train resources for assigned tasks will help to minimize project delays. DLIR is in the process of determining the resource needs for data conversion and developing the testing plan. Accuity will continue to monitor this preliminary concern as plans for resources are finalized.

Recommendation: N/A for preliminary concern findings.

TECHNOLOGY

INITIAL	SEPT	IV&V ASSESSMENT CATEGORY	IV&V OBSERVATION	FINDINGS		
				NEW	OPEN	CLOSED
R	Y	System Software, Hardware, and Integrations	Delays in the approval of the new WC forms has hindered development of the Content Management solution with the go-live date pushed back to January 2020. AWS was approved as the replacement Content Management hosting infrastructure solution. The Case Management development sprints began in August 2019. DataHouse provided additional details on integrations and preliminary evidence of integration viability. Maintenance and Operations (M&O) roles and responsibilities are unclear.	2	3	1
R	Y	Design	The Content Management design document was updated to include additional, more detailed requirements. The Case Management design document was approved in August 2019. Continuous and timely user input on design and feedback on developed features is built into the iterative Scrum methodology employed for Case Management development.	0	1	0
Y	Y	Data Conversion	The Content Management and Case Management Conversion and Migration Plans were approved in September 2019. Significant additions and changes to Content Management requirements need to be evaluated for any impacts to the data conversion plans and data conversion activities scheduled to begin in October 2019. The unsupported legacy Case Management system may impact data conversion plans.	1	2	0

TECHNOLOGY

System Software, Hardware, and Integrations

Design

Data Conversion

Quality Management and Testing

Configuration Management

Security

INITIAL	SEPT	IV&V ASSESSMENT CATEGORY	IV&V OBSERVATION	FINDINGS		
				NEW	OPEN	CLOSED
Y	Y	Quality Management and Testing	The DataHouse quality management approach covers DataHouse deliverables and testing is not yet approved. DLIR began to develop its own quality management approach and quality metrics to supplement the DataHouse quality management activities. Test plans are expected to be completed in October 2019.	0	1	0
Y	Y	Configuration Management	The Content Management and Case Management development teams follow their respective configuration management processes. DataHouse is in the process of finalizing and documenting the configuration management approach.	0	1	0
Y	Y	Security	DataHouse met with ETS to answer security questions regarding the AWS replacement solution. The security management plan was not yet approved or updated for the AWS change. The targeted completion of the plan in October 2019 is crucial for upcoming data conversion activities.	0	1	0

FINDING #: 2019.09.IT01	STATUS: OPEN	TYPE: POSITIVE	SEVERITY: N/A

TITLE: DATAHOUSE SWIFT AND ADAPTIVE RESPONSE

Finding: POSITIVE - The DataHouse team's swift and adaptive response to issues and risks minimized impact and further delays to project development.

Industry Standards and Best Practices: N/A

Analysis: Many members of the DataHouse team have contributed to the following successes:

- *Secured a replacement Content Management hosting infrastructure solution.* This included presenting the replacement solution, facilitating responses from and meetings with AWS, answering the Office of Enterprise Technology Services (ETS) security questions, and updating design documents.
- *Mitigated or remediated many of the high severity risks and issues from the IV&V Initial Report.* The team's efforts to address many risks and issues are summarized in Appendix D. Additionally, DataHouse's willingness to open project team meetings to both DLIR and IV&V and time taken to address DLIR, IV&V, and ETS concerns have greatly contributed to the progress made since the Initial Report.
- *Demonstrated commitment to DLIR and project success.* This includes the Content Management development team's flexibility in performing project work to accommodate the delays in the WC forms and the Case Management development team's openness to work towards a master RTM to facilitate traceability. Team members have demonstrated their commitment to doing what's best for the project and have even proposed ways to further improve the solution leveraging their extensive technical knowledge and experience.

The DataHouse team's actions have helped to minimize impacts and further delays to the project schedule. They have also built positive momentum in moving the project forward.

Recommendation: N/A for positive findings.

FINDING #: 2019.09.IT02	STATUS: OPEN	TYPE: PRELIMINARY	SEVERITY: N/A

TITLE: UNCLEAR M&O ROLES AND RESPONSIBILITIES

Finding: PRELIMINARY CONCERN – Unclear M&O roles and responsibilities.

Industry Standards and Best Practices: ISO/IEC/IEEE 14764-2006 International Standard for Software Engineering – Software Life Cycle Processes – Maintenance discusses the process for managing and executing software maintenance activities.

Analysis: The M&O roles and responsibilities should be clarified and associated support processes should be established prior to go-live of the Content Management and Case Management solutions. Currently, the roles and responsibilities within DLIR Electronic Data Processing Systems Office (EDPSO) team and any shared responsibilities with ETS and DataHouse are unclear. This will become more critical for DLIR as the project approaches the go-live dates. M&O resource requirements need to be quantified and resources either identified within the existing DLIR EDPSO team or additional resources acquired. This should be done with sufficient time for training and knowledge transfer so that M&O resources are in place at go-live. The Project Management Plan (version 1.3) shows the DataHouse Operations Documentation deliverable with a target completion date of December 26, 2019 for Content Management and October 6, 2020 for Case Management. DLIR EDPSO is in the process of assessing eCMS support resources. Accuity will continue to monitor this preliminary concern as plans for M&O are finalized.

Recommendation: N/A for preliminary concern findings.

FINDING #: 2019.09.IT03	STATUS: OPEN	TYPE: PRELIMINARY	SEVERITY: N/A

TITLE: UNSUPPORTED IBM LOTUS NOTES

Finding: PRELIMINARY CONCERN – Unsupported IBM Lotus Notes Domino Case Management.

Industry Standards and Best Practices: N/A

Analysis: The current case management system, IBM Lotus Notes Domino, is no longer supported. The product was sold by IBM to HCL Technologies, an Indian IT company. DLIR's licenses for the product ended in June 2019 and DLIR is unable to renew the licenses as HCL Technologies is not a State Procurement Office (SPO) compliant vendor. This system will be replaced by the eCMS Case Management solution which is scheduled to go-live in November 2020. Any major issues with the current system may impact the data conversion process leading up to the go-live date and potentially the overall system development. DLIR has identified this as a risk but has not yet assigned a risk owner or finalized the risk mitigation plans. Accuity will continue to monitor this preliminary concern until the risk mitigation plan is finalized.

Recommendation: N/A for preliminary concern findings.

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.

TERMS

RISK
An event that has not happened yet.

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

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. Up arrows indicate improvements or progress made, down arrows indicate a decline or inadequate progress made in areas of increasing risk or approaching timeline, and no arrow indicates there was neither improving or declining progress from the prior report.

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.

TERMS

POSITIVE
Celebrates high performance or project successes.

PRELIMINARY CONCERN
Potential risk requiring further analysis.

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.

SEVERITY 1: High/Critical level

SEVERITY 2: Moderate level

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 & Reinforcement
IEEE 828 -2012	IEEE Standard for Configuration Management in Systems and Software Engineering
DAMA-DMBOK2	DAMA International's Guide to the Data Management Body of Knowledge
HIPAA	Health Insurance Portability and Accountability Act of 1996 (HIPAA)
MARS-E 2.0	CMS Minimum Acceptable Risk Standards for Exchanges – Exchange Reference Architecture Supplement (MARS-E)
MITA 3.0	Medicaid Information Technology Architecture
TOGAF 9.2	The TOGAF® Standard, Version 9.2
COBIT 2019 Framework	Framework for customizing and right-sizing enterprise governance of information and technology
IEEE 1062-2015	IEEE Recommended Practice for Software Acquisition
ISO/IEC/IEEE 16326:2009	Systems and Software Engineering – Life Cycle Processes – Project Management
PMBOK® – Sixth Edition	Project Management Body of Knowledge (PMBOK®)
PROSCI	Leading organization providing research, methodology and tools on change management practices
IEEE 1012-2016	IEEE Standard for System, Software, and Hardware Verification and Validation
IEEE 1061-1998	IEEE Standard for a Software Quality Metrics Methodology
IEEE 730-2014	IEEE Standard for Software Quality Assurance Processes
ISO 9001:2015	Quality Management Systems – Requirements
ISO/IEC 25010:2011	Systems and Software Engineering – Systems and Software Quality Requirements and Evaluation (SQuaRE) – System and Software Quality Models

STANDARD	DESCRIPTION
BABOK® v3	Business Analyst Body of Knowledge
IEEE 29148-2018	ISO/IEC/IEEE International Standard – Systems and Software Engineering – Life Cycle Processes – Requirements Engineering
ISO 16085:2006	Systems and Software Engineering – Life Cycle Processes – Risk Management
ISO/IEC TR 20000-11:2015	Information Technology – Service Management – Part 11: Guidance on the relationship between ISO/IEC 20000-1:2011 and service management frameworks: ITIL®
SAML v2.0	Security Assertion Markup Language v2.0
SoaML 1.0.1	Service Oriented Architecture Modeling Language
CMMI-DEV Version 1.3	Capability Maturity Model Integration for Development
IEEE 1016-2009	IEEE Standard for Information Technology – Systems Design – Software Design Descriptions
IEEE 12207-2017	ISO/IEC/IEEE International Standard – Systems and Software Engineering – Software Life Cycle Processes
IEEE 14764-2006	ISO/IEC/IEEE International Standard for Software Engineering – Software Life Cycle Processes – Maintenance
IEEE 15289-2017	ISO/IEC/IEEE International Standard – Systems and Software Engineering – Content of Life-Cycle Information Items (Documentation)
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 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
ISO/IEC/IEEE 12207:2017	Systems and Software Engineering – Software Life Cycle Processes
ISO/IEC/IEEE 23026:2015	Systems and Software Engineering – Engineering and Management of Websites for Systems, Software, and Services Information
ISO/IEC/IEEE 24748-2:2018	Systems and Software Engineering – Life Cycle Management – Part 2: Guidelines for the Application of ISO/IEC/IEEE 15288 (System life cycle processes)
ISO/IEC/IEEE 42010:2011	Systems and Software Engineering – Architecture Description

STANDARD	DESCRIPTION
SWEBOK V3	Guide to the Software Engineering Body of Knowledge
ISO/IEC 27002:2013	Information Technology – Security Techniques -- Code of Practice for Information Security Controls
FIPS 199	Federal Information Processing Standard Publication 199, Standards for Security Categorization of Federal Information and Information Systems
IEEE 1044-2009	IEEE Standard Classification for Software Anomalies
ISO/IEC/IEEE 16326:2009	International Standard – Systems and Software Engineering – Life Cycle Processes – Project Management
IEEE 1484.13.1-2012	IEEE Standard for Learning Technology – Conceptual Model for Resource Aggregation for Learning, Education, and Training
IEEE 15288-2015	International Standard – Systems and Software Engineering – System Life Cycle Processes
ISO/IEC/IEEE 29148-2018	International Standard – Systems and Software Engineering – Life Cycle Processes – Requirements Engineering

Appendix C: Interviews, Meetings, and Documents

INTERVIEWS

DATE	INTERVIEWEE
08/12/19	Interview with JoAnn Vidinhar (DCD Executive Sponsor)
08/16/19	Interview with Catherine Gittelman (DataHouse Content Management Project Owner)
08/19/19	Interview with Hing Tai Lee (EDPSO Supervisor)
08/19/19	Interview with Justin Hiraoka (EDPSO Technical Specialist)
08/19/19	Interview with Hong Phan (DataHouse Project Sponsor)
08/20/19	Interview with Isaac Krig (DataHouse Case Management Architect)
08/20/19	Interview with Jim Shiba (DataHouse Architect)
08/21/19	Interview with Marla Takahama-Stark (DLIR Project Manager)
08/22/19	Interview with Teri Watanabe (DataHouse Project Manager)
08/22/19	Interview with Bennett Yap (EDPSO Chief)
08/22/19	Interview with JoAnn Vidinhar (DCD Executive Sponsor)
08/23/19	Interview with Scott Hee Wai (DCD Project Specialist)
08/27/19	Interview with James Fukumoto (DCD Hearings Supervisor)
08/27/19	Interview with Melanie Matsui (LIRAB) and Lily Ling (LIRAB Executive Officer)
08/27/19	Interview with Scott Eugenio (DCD R&C Supervisor)
08/28/19	Interview with Doug Belkofer (DataHouse Content Management Architect)
09/16/19	Interview with Royden Koito (DCD Business Manager)
09/19/19	Interview with Isaac Krig (DataHouse Case Management Architect)
09/20/19	Interview with Doug Belkofer (DataHouse Content Management Architect)

MEETINGS

DATE	MEETING DESCRIPTION
07/15/19	IV&V ETS Meeting
07/16/19	Weekly PM Status Meeting
07/16/19	DataHouse AWS Technical Solution Presentation
08/01/19	IV&V Initial Draft Report Discussion
08/12/19	IV&V Status Meeting
08/13/19	Weekly PM Status Meeting
08/13/19	IV&V Planning Meeting
08/13/19	Case Management Profiles Discussion
08/20/19	Weekly PM Status Meeting
08/20/19	Case Management Conversion & Migration Document Review
08/21/19	DataHouse Weekly Development Status Meeting
08/21/19	IV&V ETS Meeting
08/22/19	Case Management Epic 1 Sprint 1.1 Review
08/23/19	Content Management Demo
08/26/19	AWS Cloud Security Meeting
08/26/19	AWS Meeting with AWS Representatives
08/27/19	Weekly PM Status Meeting
08/28/19	DataHouse Weekly Development Status Meeting
09/09/19	IV&V Onsite Planning Meeting with DLIR Project Manager

MEETINGS (CONTINUED)

DATE	MEETING DESCRIPTION
09/10/19	IV&V Onsite Planning Meeting with DataHouse Project Manager
09/10/19	Content Management Scanning Meeting with LIRAB
09/11/19	DataHouse Weekly Development Status Meeting
09/12/19	Case Management Daily Scrum
09/13/19	Monthly eCMS Executive Steering Committee Meeting
09/16/19	Demo of Integrations
09/17/19	Weekly PM Status Meeting
09/17/19	IV&V Prior Findings Meeting
09/17/19	Project Communications Meeting
09/18/19	DataHouse Weekly Development Status Meeting
09/19/19	Case Management Daily Scrum
09/19/19	Demo of Integrations
09/20/19	Case Management PII/Sensitive Data Meeting
09/20/19	IV&V Onsite Review Meeting

DOCUMENTS

TYPE	DOCUMENT
Request for Proposal	State of Hawaii DLIR DCD RFP No/ RFP-17-002-DCD (Release Date April 12, 2018)
DataHouse Proposal	DataHouse ECMS Best and Final Offer (BAFO) Proposal (Dated June 20, 2018)
Request for Proposal	State of Hawaii DLIR DCD IV&V RFP No. RFP-18-001-DCD (Release Date December 28, 2018)
Contract	Contract between State of Hawaii and DataHouse Consulting Inc. (Effective August 27, 2018)
Project Plan	DataHouse Project Management Plan 1.3 (Updated 08/30/2019)
Gartner Report	Business Case for Disability Compensation Modernization Version 2.0 (Dated January 4, 2016)
Gartner Report	Business Process Optimization & Business Case Project – Alternatives Analysis Workshop (Dated December 2015)
Status Report	DataHouse Project Status Report (Status Date 07/31/2019 for reporting period 07/01 – 07/15/2019)
Status Report	DataHouse Project Status Report (Status Date 08/26/2019 for reporting period 07/16 – 07/31/2019)
Status Report	DataHouse Project Status Report (Status Date 09/09/2019 for reporting period 08/01 – 08/15/2019)
Status Report	DataHouse Project Status Report (Status Date 09/09/2019 for reporting period 08/16 – 08/31/2019)
Requirements	Requirements Traceability Matrix (Revision Date 08/29/2019)
Requirements	Requirements Traceability Matrix (Revision Date 09/20/2019)
Requirements	Case Management Requirements Version 1.3 (Updated 09/06/2019)
Requirements	DCD eCMS User Story Backlog
Development	Epic 1 Sprint 1.1 Release Detail
Development	Epic 1 Sprint 1.2 Release Detail
Risk and Issues	RAID (Risk Action Issue Decision) Log (Dated 09/13/2019, updated by DCD Risk Manager)
Risk and Issues	RAID (Risk Action Issue Decision) Log (Dated 09/20/2019, updated by DataHouse Project Manager)

DOCUMENTS (CONTINUED)

TYPE	DOCUMENT
Design	Content Management Design Version 1.1 (Updated 09/15/2019)
Design	Case Management Design Version 1.0 (Updated 08/22/2019)
Technology	DLIR DCD AWS Presentation v1 (07/16/2019)
Technology	eCMS AWS Deep Dive (Go To Meeting Recording)
Technology	AWS Certifications, Programs, Reports, and Third-Party Attestations (March 2017)
Technology	Architecting for HIPAA Security and Compliance on Amazon Web Services (July 2019)
Data Conversion	Case Management Conversion and Migration Version 1.0 (Updated 09/13/2019)
Data Conversion	Content Management Conversion and Migration Version 1.1 (Updated 09/05/2019)
Change Management	Content Management Development Team Change Management Practices Overview
Governance	Executive Steering Committee Members, Purpose, Role (08/29/2019)
Governance	Executive Steering Committee Meeting Minutes and Attachments (09/13/2019)
Schedule	eCMS Microsoft Project Plan as of 08/21/2019 (MPP file)
Schedule	eCMS Microsoft Project Plan as of 09/15/2019 (MPP file)
Costs	DCD eCMS Modernization Project – Services (Excel file)
Costs	House Finance Committee Presentation (10/19/18)

Appendix D: Prior Findings Log

Appendix D: Prior Findings Log

ASSESSMENT CATEGORY	FINDING ID	TYPE	ORIGINAL SEVERITY	UPDATED SEVERITY	FINDING	ANALYSIS	RECOMMENDATION ID	RECOMMENDATION	SUPPLEMENTAL RECOMMENDATION	FINDING STATUS	FINDING STATUS UPDATE	CLOSED DATE	CLOSURE REASON
Governance Effectiveness	2019.07.PG01	Positive	N/A	N/A	The DCD Executive Sponsor is highly engaged and plays an active and visible role in guiding, monitoring, and championing the eCMS Project.	The DCD Executive Sponsor's close involvement in the project has provided strong leadership that has, to an extent, compensated for the lack of formal governance (refer to finding 2019.07.PG02) and other project deficiencies noted throughout this report. However, as important as good sponsorship is, this factor alone can not be relied upon to guarantee project success.	N/A	N/A for positive findings.	N/A for positive findings.	Closed	N/A	9/20/2019	Closed as this is a positive finding.
Governance Effectiveness	2019.07.PG02	Risk	Moderate	Low	The lack of a formal executive steering committee and change control board may limit the effectiveness of project governance.	The DataHouse proposal and Project Management Plan (version 1.2) make references to a steering committee, however, a formal committee was not chartered. Currently, the DCD Executive Sponsor is assigned the authority in the Project Management Plan to approve all project changes.	2019.07.PG02.R1	Assemble and formalize an executive steering committee.	•The size and selection of committee members should balance the representation of key stakeholders with the need for efficient decision making. •Formalize the committee mission, responsibilities, and the types and the thresholds of decisions that need committee approval in a steering committee charter. •Consider the need or ease of creating a change control board with a subset of the committee for certain types of decisions.	Open	09/20/19: Accuity decreased the severity rating from Level 2 (Moderate) to Level 3 (Low). The eCMS Executive Steering Committee (ESC) was assembled and held its first meeting on September 13, 2019. Members were informed of the committee's purpose, roles, and member tasks, however, the types and thresholds of decisions that need committee approval or attention was not formalized. The next meeting is scheduled for October 11, 20/19. Accuity will continue to observe the effectiveness of the meetings and project governance.		
Governance Effectiveness	2019.07.PG03	Risk	Moderate	N/A	The unclear DataHouse contract terms may limit objective evaluation of contractor performance and contract fulfillment.	The procurement of the System Integrator (SI) for the eCMS Project was performed by DLIR EDPSO and reviewed by ETS. The RFP and DataHouse contract does not clearly outline expected deliverables, evaluation criteria for accepting deliverables, and clear delineation of roles and responsibilities. There has already been confusion or misunderstandings due to unclear contract terms in the areas of form design, risk and issue tracking (refer to finding 2019.07.PM09), requirements tracking (refer to finding 2019.07.PM10), and communications (refer to finding 2019.07.PM07). Additionally, the lack of specific acceptance criteria has led to approval of deliverables that do not meet industry standards (refer to finding 2019.07.PM.03). DataHouse has already prepared certain management plans and project documents and has been amenable to providing certain additional deliverables even though they were not clearly required to by the RFP or contract. Clear contract terms set expectations for deliverables and will assist DLIR to ensure that contractors fulfill obligations to the standard of quality that is required.	2019.07.PG03.R1	Evaluate the need for a contract modification to clarify contract terms.	•Consider including key project documents as deliverables such as a requirements management plan and requirements traceability matrix (RTM) (refer to finding 2019.07.PM10), risk and issue log (refer to finding 2019.07.PM09), and testing documentation. •Consider including acceptance criteria based on industry standards. For example, the acceptance criteria could be compliance with Institute of Electrical and Electronics Engineers (IEEE) 29148-2018 for a requirements traceability matrix or compliance with IEEE 829 for test documentation. •Consider including measurable success metrics (refer to finding 2019.07.PG05). •Consider the need to outline roles and responsibilities between DLIR and DataHouse (refer to finding 2019.07.PM02).	Closed	09/20/19: DLIR has decided to address this finding through updates of project plans. DataHouse has shown an openness to develop and continuously improve project deliverables including project plans. Roles and responsibilities have been more openly discussed and plan to be incorporated within project plans. Furthermore, success and quality metrics are being drafted which will also be an additional method for evaluating contractor performance and fulfillment.	9/20/2019	Closed as DLIR will address through project plan updates. The need for clarification of roles and responsibilities as well as acceptance criteria and success metrics will continue to be monitored under the 2019.07.PG04 Success Metrics, 2019.07.PM02 Project Organization, 2019.07.PM03 Deliverable Review, and 2019.07.IT05 Quality Management findings.
Governance Effectiveness	2019.07.PG04	Risk	Low	N/A	The lack of guidelines, checklists, and shared project assets may reduce project performance and efficiency.	Large IT projects are not a regular occurrence for many State departments. Often times project resources are assigned from within the departments that have valuable organizational and operational knowledge but do not have the necessary project management experience. Having guidelines and checklists and access to project documents from past State projects would greatly benefit even experienced project teams. ETS, as the State of Hawaii's IT oversight office, is in the best position to gather project assets and put forth guidelines.	2019.07.PG04.R1	Initiate conversations with ETS to discuss DLIR IT and project support needs and responsibilities.	•Discuss what resources, guidance, and shared project assets would be most helpful to DLIR. •Discuss what project assets DLIR can provide to contribute to the development of a centralized project management library. •Consider involving the project steering committee to align and clarify ETS vs. steering committee governing roles.	Closed	09/20/19: ETS began sharing best practices and lessons learned with DLIR including taking the DLIR Project Manager to sprint meetings for another State project. ETS is a member of the newly formed eCMS Executive Steering Committee (ESC) and will use that vehicle to shared lessons learned with DLIR. Additionally, DLIR is forming a DLIR IT Steering Committee to provide oversight to all DLIR IT projects. The DCD Executive Sponsor is a member of that DLIR committee and plans to share eCMS lessons learned and project templates with other DLIR IT projects.	9/20/2019	Closed as discussions occurred with ETS and the risk is adequately mitigated with the planned course of action.
Benefits Realization	2019.07.PG05	Risk	High	Moderate	Not defining, tracking, or using clear and measurable goals and success metrics to evaluate project and contractor performance may reduce benefits expected at project completion.	The eCMS Project does not have a project charter that would have helped to formalize the project goals, target benefits, and success metrics at the start of the project. Based on informal recommendations made by Team Accuity during the initial IV&V on-site review, DLIR is in the process of creating a project charter that includes clear goals and success metrics. The lack of clear and measurable goals and success metrics makes it difficult to determine if the project and technical solution will achieve the desired level of improvement or benefits that justify the project's financial investment. Goals and success metrics need to be defined before going any further in the project as they should be guiding all key decisions throughout the entire project.	2019.07.PG05.R1	Formalize measurable goals and success metrics in a project charter.	•Consider financial, nonfinancial, tangible, and intangible metrics such as operational Key Performance Indicators (KPIs), customer or employee satisfaction, user adoption, return on investment, or cycle or processing times. •Consider project management, organizational change management, and benefits realization management objectives as well as alignment to DLIR goals.	Open	09/20/19: Accuity decreased the severity rating from Level 1 (High) to Level 2 (Moderate). The DCD Business Manager has been assigned the task of developing and monitoring eCMS Project success metrics with the support and oversight of the DCD Executive Sponsor. The DCD Business Manager drafted some preliminary metrics for consideration that will continue to be refined and finalized. Accuity will evaluate the success metrics as they are finalized.		
							2019.07.PG05.R2	Collect baseline and project performance data.	•Consider methods for collecting data such as surveys, queries, observation, open forums, or actual performance testing. •Consider sources of data such as legacy systems, operations, and internal and external stakeholders.				
							2019.07.PG05.R3	Use performance data to monitor or evaluate project or contractor performance.					
Benefits Realization	2019.07.PG06	Risk	Low	N/A	Failure to align statutes with the eCMS Project modernization objectives may reduce the operational improvements that are achieved.	The eCMS Project's primary modernization objective is to move to a paperless and automated business process. The new system is being designed to allow for electronic filing, routing, and tracking of forms. However, current disability compensation statutes have not been revised to require that these forms are filed electronically by law. As such, manual paper forms may continue to be submitted by external users such as claimants, employers, and insurance companies. As the development of a portal for public filing will not begin until Phase 3, this risk is not as imminent. However, as the evaluation of potential impacts, collection of feedback from stakeholders, and the legislative process to amend statutes is a long process, the initial planning should begin as early as possible so as not to postpone or reduce the realization of the benefits from the new system.	2019.07.PG06.R1	Develop a plan and timeline to amend the statutes to align to project and organizational objectives.		Closed	09/20/19: In 2016, DLIR convened a Working Group (WG) consisting of representatives from various DCD-related stakeholder groups. The WG provides an avenue for DLIR to understand stakeholders' concerns and a forum for the stakeholders to understand the DLIR's business process improvements including the need for statutorily mandated electronic claim filings. DLIR plans to draft statutory changes to mandate electronic filing in FY2022 (effective July 1, 2023). This timeframe was decided on as it allows DLIR to proactively involve stakeholders in testing production and provide stakeholders the appropriate time to ready their systems for electronic filing.	9/20/2019	Closed as DLIR has a plan to align statutes with eCMS Project objectives.
Project Organization and Management	2019.07.PM01	Positive	N/A	N/A	The DLIR Project Manager is a dedicated project lead who works collaboratively with internal stakeholders.	The DLIR Project Manager is hardworking and has continually demonstrated dedication to the project and an eagerness to learn. Additionally, the DLIR Project Manager has some of the necessary leadership qualities that make her a good project manager. Her positive nature and collaborative approach develops trust with and satisfies concerns of many internal stakeholders. This has mitigated some of the communication and OCM risks (refer to findings 2019.07.PM07 and 2019.07.PM08). However, the DLIR Project Manager is the only full-time DLIR employee assigned to the eCMS Project and there is not a sufficient amount of project resources (refer to finding 2019.07.PM14) to properly manage the project.	N/A	N/A for positive findings.	N/A for positive findings.	Closed	N/A	9/20/2019	Closed as this is a positive finding.

ASSESSMENT CATEGORY	FINDING ID	TYPE	ORIGINAL SEVERITY	UPDATED SEVERITY	FINDING	ANALYSIS	RECOMMENDATION ID	RECOMMENDATION	SUPPLEMENTAL RECOMMENDATION	FINDING STATUS	FINDING STATUS UPDATE	CLOSED DATE	CLOSURE REASON
Project Organization and Management	2019.07.PM02	Risk	High	Moderate	The current project management organization may hinder project performance.	The eCMS Project has failed to achieve team synergy between DLIR and DataHouse project team members and appear to work as separate teams instead of one. DataHouse works almost exclusively off-site except for designated meetings, workshops, and design sessions and DLIR is not included in many project design or development activities. The unclear contract terms regarding roles and responsibilities between DLIR and DataHouse (refer to finding 2019.07.PG03), physical separation of the project team, and limited collaboration or DLIR involvement have all contributed to the siloed workstreams. This has also led to ineffective communications within the project team (refer to finding 2019.07.PM06).	2019.07.PM02.R1	Clarify roles and responsibilities between DLIR and DataHouse.	•Consider revising project management plans to identify the person responsible and list specific responsibilities for each project management area. •Consider the need to include an outline of DLIR and DataHouse roles and responsibilities in a contract modification (refer to finding 2019.07.PG03).	Open	09/20/19: Accuity decreased the severity rating from Level 1 (High) to Level 2 (Moderate). Although DataHouse does not plan to work onsite at DLIR, they began to include DLIR in sprint planning, review, and retrospective meetings. This has given DLIR more insight into project status and roles and responsibilities. The DLIR Project Manager and DCD Executive Sponsor feel that there is more overall project cohesion and that the DataHouse Project Manager's communication is effective via phone, email, text, Go To meetings and in-person meetings. As noted above at finding 2019.07.PG03, DLIR plans to clarify roles and responsibilities in project plan updates. The Case Management Conversion and Migration Plan Version 1.0 did delineate some responsibilities between the DataHouse Conversion and Migration Team and DLIR. Accuity will continue to evaluate the clarity of roles and responsibilities as project plans are refined and observe the effectiveness of project organization.		
							2019.07.PM02.R2	The DataHouse Project Manager should work onsite at DLIR through project completion to improve DLIR and DataHouse project team cohesion.					
							2019.07.PM02.R3	Include DLIR in project activities and communications to increase DLIR and DataHouse project team cohesion.					
Project Organization and Management	2019.07.PM03	Issue	Moderate	Moderate	The current deliverable review and acceptance process has contributed to project delays and resulted in the acceptance of deliverables that do not meet industry standards.	DataHouse prepares project deliverables and submits to DLIR for review. As DLIR has had limited involvement in project activities or the preparation of deliverables (refer to finding 2019.07.PM02), DLIR does not have an understanding of the purpose of the deliverables or the thought process and factors that were considered in developing the deliverables. This has led to protracted review periods and acceptance of deliverables that do not meet industry standards (refer to finding 2019.07.PM10). A lack of a clear deliverable listing or acceptance criteria (refer to finding 2019.07.PG03), a lack of a quality management process and resource to verify deliverables (refer to finding 2019.07.IT05), and over tasked project managers (refer to finding 2019.07.PM14) also contribute to an ineffective deliverable review and acceptance process. The delay in the approval of deliverables has been cited by the eCMS Project team as one of the reasons the Phase 1 go-live dates were extended. Based on informal IV&V recommendations, DataHouse and DLIR started to implement joint deliverable review meetings beginning June 2019.	2019.07.PM03.R1	Establish deliverable acceptance criteria.	Consider including acceptance criteria in the quality management plan (refer to finding 2019.07.IT05), in a contract amendment (refer to finding 2019.07.PG03), or in Deliverable Expectation Documents (DED).	Open	09/20/19: Accuity has kept the severity rating as Level 2 (Moderate). Although Accuity observed DataHouse and DLIR meetings to review draft deliverables and DLIR has expressed greater satisfaction in the deliverable review and acceptance process, the process to evaluate deliverables against established acceptance criteria has not yet been implemented. Additionally, the impact of deliverables on project schedule, roles and responsibilities, design, migration, etc. is not consistently clear. Accuity will continue to evaluate the effectiveness of the deliverable review and acceptance process.		
							2019.07.PM03.R2	Hold joint DLIR and DataHouse deliverable review meetings to walk through deliverables.					
							2019.07.PM03.R3	Implement formal deliverable review and approval processes.	•Include both the scope validation process for acceptance and the quality control process for correctness (refer to finding 2019.07.IT.05). •Include an evaluation of deliverables against acceptance criteria and requirements documentation. •DLIR should understand how each deliverable impacts the project schedule, roles and responsibilities, and ultimately the quality of the technical solution and success of the project.				
Project Organization and Management	2019.07.PM04	Issue	High	N/A	DataHouse proposed a solution on their BAFO without obtaining a written letter of intent between DataHouse and DHS. Furthermore, the eCMS Project advanced for 10 months without a formal MOU between DLIR and DHS and reliance on the DataHouse Project Sponsor to lead the discussions due to her experience with DHS.	The DataHouse BAFO proposed a technical solution that planned to leverage DHS's IBM FileNet environment, however, there was no written agreement between DataHouse and DHS that supported DHS intent to support shared services. Once the eCMS Project was underway, the MOU discussions with DHS were primarily led by the DataHouse Project Sponsor. The eCMS Project advanced for 10 months without finalizing the MOU between DHS and DLIR. As the proposed solution is no longer viable due to the recent DHS development, an alternative solution must be determined (refer to finding 2019.07.IT01) and previously accepted or drafted deliverables may need to be updated. Although the eCMS Project will not be able to utilize DHS's IBM FileNet environment, the project still plans to leverage DHS's enterprise licenses for FileNet and Datacap. Before moving forward in the project, DLIR should finalize all necessary agreements to ensure that the alternative solution is viable and prevent further delays.	2019.07.PM04.R1	Finalize the MOU to leverage DHS's enterprise licenses for FileNet and Datacap.		Closed	09/20/19: The MOU with DHS for Datacap and FileNet licenses is close to being finalized. DLIR received a draft from DHS on September 1, 2019 and it was sent to the Attorney General's office on September 17, 2019. Accuity has observed that DLIR has lead the contract discussions and negotiations with AWS.	9/20/2019	Closed as the MOU with DHS is in process to be finalized and DLIR is leading contractor negotiations. The recommendation to identify all critical tasks will continue to be monitored under the 2019.07.PM13 Schedule Management finding.
							2019.07.PM04.R2	DLIR should lead all discussions and negotiations of vendor contracts or agency agreements.					
							2019.07.PM04.R3	Identify and complete all critical tasks prior to moving forward with an alternative solution.					
Project Organization and Management	2019.07.PM05	Risk	Moderate	Moderate	A lack of clarity on DataHouse's development methodology may not allow or adequately prepare stakeholders to participate readily.	DataHouse is using a modified Agile development methodology that is referred to as "Water-Scrum-Fall". This is a combination of the waterfall and Agile methods that defines the full set of requirements at the beginning but uses Agile user stories and sprints while building the software. Based on the current project plan, the eCMS Project was supposed to begin the Build stage of Phase 1 and transition to the Scrum methodology. Although the recent DHS development will likely delay the kickoff of this stage, there are a number of concerns regarding the transition to the Scrum methodology: * DataHouse has not yet fully determined the number, length, and details of the sprints. * The project schedule also does not yet reflect the agile sprints cycles or identify resources who are expected to participate. * There have not been communications with the DLIR project team and stakeholders regarding the Scrum methodology or the roles and responsibilities they have during this stage of the project. * Many of the DataHouse project team members work remotely and are unable to work on-site.	2019.07.PM05.R1	Formalize an approach for executing Scrum phases.	•Consider industry best practices for Agile methodologies such as retrospectives, daily standups, burndown charts, and frequent user demonstrations and feedback. •Establish the backlog preparation and refinement process. •Establish virtual conferencing tools and communication protocols for geographically distributed team members. •Set the number and length of the sprints. •Update the project schedule for sprint activities and assign resources (refer to finding 2019.07.PM14). •Include clear and detailed procedures and roles and responsibilities for Scrum tasks (refer to finding 2019.07.PM02). •DLIR should be included in project team activities (refer to finding 2019.07.PM02).	Open	09/20/19: Accuity has kept the severity rating as Level 2 (Moderate). Although DataHouse has incorporated the Case Management sprint schedule into the overall project schedule and provided a high-level overview of the requirements/user stories to be covered by each sprint, roles and responsibilities still need to be clearly defined and communicated. The Case Management, development team follows a classic Scrum model and plans to clarify roles and responsibilities of Product Owners and users, how new requirements will be approved and prioritized, and acceptance criteria during the next user review and Epic 2. The Content Management development team follows a semi-agile process and drafted an overview document of the team's change management practices. Accuity will continue to evaluate the Scrum approach as processes are refined and communicated.		
							2019.07.PM05.R2	Communicate the approach for executing Scrum phases to all team members and impacted stakeholders.					
Communication Management	2019.07.PM06	Issue	High	Moderate	DataHouse's ineffective and untimely communications with the DLIR Project Team contributed to DLIR's incomplete understanding of the technical solution, potential risks, and upcoming project activities.	Communication activities listed in the Project Management Plan (version 1.0) did not occur as planned as the weekly project status meetings did not begin until April 2019 and the first progress report was not completed until February 2019. Despite the commencement of regular project communications, misunderstandings and miscommunications between the DataHouse and DLIR project teams continued to occur. DLIR project team members had a piecemeal understanding of the technical solution (refer to finding 2019.07.IT02) and project risks and issues (refer to finding 2019.07.PM09). Additionally, information regarding upcoming project activities was not provided timely. For example, DataHouse did not timely communicate to DLIR what to expect for the design stage sessions (e.g., what would be covered each day, which end users needed to participate). There has also been a lack of communications regarding the upcoming build stage activities (refer to finding 2019.07.PM05). The IV&V recommendations made at 2019.07.PM02.R2 and 2019.07.PM02.R3 regarding DataHouse working on-site and including DLIR in project activities will also address this finding. Below are additional recommendations to further improve project team communications.	2019.07.PM06.R1	Implement daily touch point meetings between DataHouse and DLIR Project Managers.		Open	09/20/19: Accuity decreased the severity rating from Level 1 (High/Critical) to Level 2 (Moderate). The DataHouse and DLIR Project Managers have daily touch points through various methods (in-person meetings, Go To Meetings, email, phone and text). Furthermore, as noted above at finding 2019.07.PM02, DLIR has been included in more DataHouse meetings including sprint planning, reviews, and retrospectives. Accuity will continue to evaluate the effectiveness of these project communication channels.		

ASSESSMENT CATEGORY	FINDING ID	TYPE	ORIGINAL SEVERITY	UPDATED SEVERITY	FINDING	ANALYSIS	RECOMMENDATION ID	RECOMMENDATION	SUPPLEMENTAL RECOMMENDATION	FINDING STATUS	FINDING STATUS UPDATE	CLOSED DATE	CLOSURE REASON
Communication Management	2019.07.PM07	Risk	Moderate	Low	The lack of tailored project communications for all impacted stakeholders may reduce user adoption and stakeholder buy-in.	Communications management is a part of the Project Management Plan developed by DataHouse, however, the plan is not comprehensive and primarily reflects project meetings, status reporting, and issue reporting. The approved Project Management Plan (version 1.2) was updated to include a communication matrix that outlines additional communication activities. While this is an improvement over the previous version, the latest draft plan still does not provide adequate details regarding communication activities as all stakeholders are grouped together for three broad communication methods and activities. A formal communication requirements analysis was not conducted to determine the information needs of internal and external project stakeholders. There is not a process to ensure the timely distribution of project information and there is no dedicated role or adequate resources assigned to communications management (refer to finding 2019.07.PM14). As such, communication activities have occurred haphazardly. The limited communication activities is somewhat mitigated as the DLIR Project Manager involves internal stakeholders in project-related meetings and working sessions. However, this informal approach does not include all internal stakeholders or any external stakeholders.	2019.07.PM07.R1	Further refine communication management plans.	•Segment stakeholders into groups by communication needs such as by department unit (e.g., Hearings, Enforcement, or Records and Claims), by position (e.g., manager, supervisor), or internal and external (e.g., claimants, insurance agencies). •Consider the list of communication methods listed in DataHouse's BAFO. •Due to limited DLIR resources available for communication activities, the specific groups and communication activities should be prioritized to focus resources most efficiently. •Update the project schedule for communication activities and assigned resources (refer to finding 2019.07.PM14).	Open	09/20/19: Accuity decreased the severity rating from Level 2 (Moderate) to Level 3 (Low). DLIR plans to hold two sessions on October 1, 2019 to update the DLIR internal stakeholders (including neighbor island staff) on what has been happening for the last year on the eCMS Project including a brief demo by DataHouse of how the new system will work and look. DLIR also plans to update the DLIR website to include project information that is accessible by internal and external stakeholders. Accuity will continue to evaluate project communication plans and activities.		
Organizational Change Management	2019.07.PM08	Risk	Moderate	Low	Missing key OCM steps or activities may not identify pockets of resistance or adequately enable individual change.	There is no formal OCM plan or approach. DataHouse's BAFO lists various OCM activities but these were not formalized in a plan or processes. There are no OCM specific tasks or resources assigned for OCM activities in the project schedule (refer to finding 2019.07.PM14). Although there is no formal or coordinated OCM approach, some elements of OCM occur through regular project management communication and training activities. The DLIR Project Manager's inclusive and collaborative approach with internal stakeholders (refer to finding 2019.07.PM01) and the DCD Executive Sponsor's active and visible support of the project (refer to finding 2019.07.PG01) also mitigates the lack of a formal approach. Although projects may progress without a formal OCM approach, industry best practices support that a structured OCM approach compliments project management approaches in increasing probability of project success. Performing activities with an OCM focus will help to better prepare, equip, and support individuals throughout the project and to ensure that the solution is ultimately adopted and embraced by employees.	2019.07.PM08.R1	Develop and implement a structured OCM approach.	•Collect baseline change awareness and readiness measurements through surveys or interviews. •Create and mobilize a change coalition group of managers, supervisors, and key influencers. •Incorporate and align OCM into communication, business process engineering (BPR), and training activities. •Develop OCM activities to address identified awareness gaps or pockets of resistance. •Implement reinforcement mechanisms to support change and increase adoption.	Open	09/20/19: Accuity decreased the severity rating from Level 2 (Moderate) to Level 3 (Low). A number of communication activities are planned to provide awareness of the upcoming project activities including the DLIR internal stakeholder meeting and DLIR website discussed above at finding 2019.07.PM07. Accuity will continue to evaluate the OCM approach and monitor the change readiness of project stakeholders.		
Risk Management	2019.07.PM09	Issue	High	Moderate	Risks and issues have not been clearly identified, tracked, or reported resulting in the lack of understanding of potential impacts across project team members and there are no mitigation plans to adequately address them.	Only three risks and two issues have been identified by DataHouse on the project to date with no history of any risks being closed. DLIR project team was not tracking any of its own risks or issues related to the project. A risk regarding the delay in the completion of the MOU agreement with DHS (refer to finding 2019.07.PM04 and 20109.07.IT01) was never identified and the risk identified in the Content Management Conversion and Migration (version 0.0) document (refer to finding 2019.07.IT.04) was not included in the risks and issues log, indicating an ineffective risk and issue management process. Based on information IV&V recommendations made during the assessment period, both DLIR and DataHouse have communicated a plan to start identifying and logging risks jointly onto DataHouse's log and reviewing them together weekly. As identification and mitigation of risks and issues are critical to project success, a formal process should be implemented before moving forward in the project.	2019.07.PM09.R1	Formalize the Risk and Issue Management process.	•A formalized process should clearly define responsibilities and steps in identification, resolution and action items tracking, and escalation procedures. •The project team must encourage open, transparent discussion about risks and issues.	Open	09/20/19: Accuity decreased the severity rating from Level 1 (High/Critical) to Level 2 (Moderate). A DLIR Risk Manager was assigned in August 2019 and has begun to use mind mapping and a log to identify and document risks. Risks and issues has been included on the agenda for weekly project status and monthly Executive Steering Committees meetings. The risk management process needs to be further refined to combine the DataHouse and DLIR logs into one source, assign risk owners, and develop mitigation or remediation plans for each risk or issue. Accuity will continue to monitor the risk management process.		
							2019.07.PM09.R2	Conduct regular meetings to discuss project risks and issues.	•Include DataHouse and DLIR and, on occasion, the executive steering committee (refer to finding 2019.07.PG02). •Perform a detailed review of new items, status of open items, risk/issue owners, and mitigation plans.				

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Scope and Requirements Management	2019.07.PM10	Issue	High	Moderate	The Content Management and Case Management requirements documentation is incomplete.	The requirements for both Content Management and Case Management have already been approved, however, the requirements are incomplete (e.g. do not incorporate all contract requirements and all three project phases) and the descriptions in the Requirements Traceability Matrix (RTM) lack sufficient detail. The current RTM also does not link operational and project objectives to design artifacts. Furthermore, the RTM does not include non-functional requirements, including compliance with Hawaii Revised Statues, Hawaii Administrative Rules and security requirements. Requirements management is a part of the Project Management Plan developed by DataHouse, however, the plan is not comprehensive. The Project Management Plan (version 1.2) was updated to include additional details regarding requirements management. While this is an improvement over the previous version, the latest draft plan still does not provide adequate details regarding the requirements prioritization process, the traceability structure, and how requirements will be reported. As requirements are the foundation for proper system design, development, and testing, it is essential that requirements documentation are complete and meet industry standards and best practices. Requirements documentation should be revised and requirements management processes should be improved prior to moving forward in the project.	2019.07.PM10.R1	Revise Content Management and Case management requirements documentation and RTM.	•Ensure requirements follow SMART (specific, measurable, actionable, realistic and time bound) guidelines. •Ensure requirements documentation include all requirements listed in the DataHouse contract, all requirements identified during the stakeholder sessions, and for all three phases of the eCMS Project. •Ensure requirements include functional, performance, process, non-functional, security, and interface requirements.	Open	09/20/19: Accuity decreased the severity rating from Level 1 (High/Critical) to Level 2 (Moderate). The RTM has been updated to include more detailed and specific requirements and user stories from the Case Management and Content Management development teams. DataHouse is in the process of enhancing their RTM to crosswalk and merge all requirements into one master document including all contract requirements. With the staggered development of the Content Management and Case Management solutions and the iterative nature of Scrum methodology, additional requirements will continue to be identified throughout Case Management development which could have implications to Content Management. As noted above at finding 2019.07.PM05, the process for approving and prioritizing requirements still needs to be set. Formalizing the process for managing requirements remains key. Accuity will continue to evaluate the requirements documentation and processes.		
							2019.07.PM10.R2	Improve requirements management processes.	•Ensure that there is a clear understanding between DataHouse and DLIR regarding who is responsible for identifying and tracking different types of requirements. •Develop a process for prioritizing and reporting requirements. •Develop a process for tracing requirements to specific system design elements.				
Business Process Reengineering	2019.07.PM11	Risk	Moderate	Moderate	Not identifying and addressing BPR opportunities prior to system design and development may require additional effort to correct.	There is no formal plan for BPR activities. DataHouse's approach to BPR was to start with the current state process maps, walkthrough the process with stakeholders, and make updates to the processes maps. As a result of this process, DataHouse provided future state process maps. However, Team Accuity was unable to clearly understand how processes were prioritized for change, root causes were addressed, or processes were improved (e.g., elimination of rework loops). Business process improvement is a key deliverable identified in the RFP and in DataHouse's contract. The DataHouse contract states that the key deliverable will be manifested through: faster throughput of data into the system; faster response times to requests by users, less errors reported in the system; greater flexibility to make system changes; and online access and input by internal and external users. However, the RFP and contract do not clearly identify how this deliverable will be supported, evaluated, or accepted by DLIR (refer to finding 2019.07.PG03). There should be clear documentation on how the new solution plans on measuring and achieving key business process improvement performance goals. The IV&V recommendations made at 2019.07.PG05.R1, 2019.07.PG05.R2, and 2019.07.PG05.R3 regarding clear and measurable goals and success metrics will also address this finding. Below is an additional recommendation to further improve BPR activities.	2019.07.PM11.R1	Identify and track BPR opportunities in a log.	This log should be used to plan BPR and design activities and to develop content for communications and training.	Open	09/20/19: Accuity has kept the severity rating as Level 2 (Moderate) as a process or tool for tracking BPR changes for future communications and training has not been created. Accuity will continue to evaluate BPR processes.		
Cost, Schedule and Resource Management	2019.07.PM12	Risk	High	High	Informal cost management practices may lead to unexpected costs or overpayments of contracts.	There is no formal cost management plan. A comprehensive total project budget is not created, tracked, or reported. Currently, payments are tracked for the two main eCMS Project contracts: DataHouse SI contract and the Team Accuity IV&V contract. Other costs for licenses and equipment are tracked informally as these are often paid from DCD's regular or excess funds. With the recent DHS development, costs of all required hardware and software for the alternative solution as well as long-term operational costs need to be properly evaluated and managed (refer to finding 2019.07.IT01). Additionally, total project costs and funding sources are not formally reported. The DataHouse contract states that payments are contingent upon receipt of services, deliverables, and reports in accordance to the milestones that meet the expectations of the RFP. DataHouse provided DLIR with a monthly payment schedule and as of June 30, 2019, DLIR has paid DataHouse's invoices through April 2019 (May and June 2019 invoice payments are still pending). Although the project schedule, deliverable timelines, and go-live dates have been pushed back, no adjustments were made to the monthly payment schedule which could result in overpayments. Due to the lack of clear and specific deliverable expectations (refer to finding 2019.07.PG03), incomplete understanding of all the schedule delays (refer to finding 2019.07.PM13), and undefined criteria for revising the payment schedule, Team Accuity is unable to determine if DataHouse payments are appropriately managed.	2019.07.PM12.R1	Prepare a comprehensive project budget and a schedule of long-term operational costs (e.g., licenses, subscriptions, maintenance, cloud services).		Open	09/20/19: Accuity has kept the severity rating as Level 1 (High) as a comprehensive project budget and long-term cost schedule have not been created yet. Additionally, regular cost variance reports are not prepared or presented. Accuity will continue to monitor project costs including new AWS costs (from finding 2019.07.IT01) and cost management practices.		
							2019.07.PM12.R2	Prepare regular cost reports for management and the executive steering committee.					
							2019.07.PM12.R3	Clarify DataHouse payment terms and adjust payment schedules for schedule delays.					

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Cost, Schedule and Resource Management	2019.07.PM13	Risk	High	High	Inadequate schedule management practices may lead to project delays, missed project activities, unrealistic schedule forecasts, or unidentified causes for delays.	The Phase 1 go-live dates were delayed a few times since the start of the project with the Content Management go-live delayed five months and the Case Management go-live delayed three months. Reasons for the delay provided by the eCMS Project team included additional time for requirements gathering, some Phase 2 work that was moved up to Phase 1, staff vacations during the holidays, time for the DLIR Project Manager to write the RFP for the IV&V contract, and delayed procurement of the scanners. Although there are reasonable explanations for some of the delays, detailed schedule variance analyses to understand causes and impacts of the delays have not been thoroughly performed, documented, or reported. Decisions or change requests to revise the project schedule are not properly documented or approved in accordance with the Project Management Plan. DataHouse has prepared a higher-level project schedule and a more detailed task listing. Although the project schedule will need to be updated due to the recent DHS development and selection of an alternative solution, the following deficiencies were noted in the current project schedule: * Does not include all project tasks such as Build stage sprints, communication, OCM, BPR, and quality assurance (refer to findings 2019.07.PM05, 2019.07.PM07, 2019.07.PM08, 2019.07.PM11, and 2019.07.IT05). * Does not include estimated durations. Durations are only included in the more detailed task listing. * Only includes tasks for Phase 1. The Phase 2 and 3 tasks are only included in the more detailed task listing. * Specific assigned resources are not identified as only a generic DataHouse or DCD designation is used.	2019.07.PM13.R1	Document and approve revisions to project schedule deliverables, milestones, and go-live dates in accordance with the Project Management Plan.		Open	09/20/19: Accuity has kept the severity rating as Level 1 (High). Although DataHouse updated the project schedule to include additional tasks for Phases 1, 2 and 3 and identify specific resources assigned for select tasks, there are still a number of deficiencies noted. The project schedule is not fully resource loaded, is not integrated with subcontractor's detailed schedules, does not include all DLIR project tasks, estimated hours, or adequately detailed tasks for Phase 2 and 3, and does not retain baseline dates for variance analysis. As a result, Accuity is unable to assess the over allocation of resources, identify the critical paths, or determine if time estimates or project progress percentages are reasonable. Additionally, regular schedule variance reports are not prepared or presented. Accuity will continue to monitor the project schedule and schedule management practices.		
							2019.07.PM13.R2	Refine the project schedule with details of tasks, durations, phases, and assigned resources.					
							2019.07.PM13.R3	Prepare regular schedule reports and schedule variance analyses for management and the executive steering committee.					
Cost, Schedule and Resource Management	2019.07.PM14	Risk	Moderate	Moderate	Inadequate assigned project resources may lead to project delays, reduced project performance, or turnover of project resources.	Team Accuity was unable to evaluate resource workloads based on the project schedule information (refer to finding 2019.07.PM13), however, based on observations of the eCMS Project team, the DataHouse and DLIR Project Managers appear to be over-tasked. The DLIR Project Manager is the only full-time DLIR employee assigned to the eCMS Project and understandably does not have time to perform all of the tasks to properly manage the project or represent DLIR during project activities. DLIR should increase participation in design and development activities (refer to finding 2019.07.PM02) but would not be able to with the current assigned resources. Resource management is included in the Project Management Plan and states that "resources will be provided based on project needs. This will be reviewed with DCD on a quarterly basis." The Project Status Reports prepared by DataHouse do not note any resource needs under the Staffing (Needs, Anticipated Changes) section. However, Team Accuity noted that the DataHouse Quality Assurance Lead has not been assigned (refer to finding 2019.07.IT05). DataHouse is also considering adding a project coordinator resource to assist with meeting minutes and getting deliverables out.	2019.07.PM14.R1	Reevaluate project resource needs and acquire additional resources.	•Perform project schedule updates for the alternative solution (refer to finding 2019.07.IT01) and missing tasks (refer to finding 2019.07.PM13). •Ensure resource levels and skill sets align to assigned tasks.	Open	09/20/19: Accuity has kept the severity rating as Level 2 (Moderate). Although two of the eCMS DLIR project team members have been assigned additional responsibilities to lighten the load of the DLIR Project Manager, inadequate resources and the timing of upcoming and critical project activities continue to be a concern. Accuity will continue to assess the adequacy of project resources.		
							2019.07.PM14.R2	Prepare regular resource reports for management and the executive steering committee.	•Consider including resource needs for unassigned tasks or roles. •Consider including DLIR resources needed and estimated hours for upcoming project activities (e.g., design sessions, user demonstrations, or user testing).				
System Software, Hardware and Integrations	2019.07.IT01	Issue	High	N/A	The original solution proposed by DataHouse in their BAFO to leverage the existing DHS FileNet hosting infrastructure is no longer a feasible solution.	There are a number of items in the DataHouse BAFO that are no longer feasible based on the inability to leverage the existing DHS FileNet environment. Under the original solution, DHS would monitor and maintain the enterprise IBM FileNet environment. As DHS will no longer be providing access to their IBM FileNet environment, DLIR will need to identify resources to take on the monitoring and maintenance of the IBM FileNet infrastructure. As DataHouse recommended in the BAFO the on-premise installation for the IBM ECM solution due to the capture volume and higher performance of document file transfers over the LAN and internal State network, DLIR should be provided with a technical analysis of various solution options that includes a comparison of the alternatives on performance. Although this issue relates to the proposed hosting infrastructure solution for Content Management, this is an opportunity for both DataHouse and DLIR to reassess the total solution considering all updated technological opportunities available today. DLIR should ensure that DataHouse performs sufficient analysis regarding possible alternative solution options. DLIR should also take the time to perform adequate due diligence before making any decisions. It is important that thorough analysis and adequate due diligence is performed before moving forward in the project in order to avoid further project delays and to ensure that the delivered system will meet operational and stakeholder requirements.	2019.07.IT01.R1	Evaluate other total solution alternatives for an alternative solution.	•Consider solutions that could include other technical applications that could utilize a different choice of methodology using different tools, provide a cheaper solution for the longer-term, and faster implementation. •Consider the following website which lists 20 competitive alternatives to IBM FileNet for consideration: www.g2.com/products/ibm-filenet-content-manager/competitors/alternatives. Additional research could result in more extensive choices going forward.	Closed	09/20/19: In July 2019, DataHouse presented AWS as a potential alternative solution. The proposed AWS solution was compared to another cloud solution, Microsoft Azure, in respects to cost and performance. DataHouse reviewed the listing of content management solutions provided by Accuity and concluded that IBM FileNet was the best solution for this project, however, no formal analysis was prepared. DLIR approved AWS as the replacement hosting infrastructure solution effectively remediating the inability to leverage the DHS FileNet environment issue. Accuity had also recommended that a comprehensive technical analysis be prepared on the replacement solution, however, DLIR decided not to formally document the analysis as they are comfortable with the selection based on reading of AWS whitepapers, the information provided by DataHouse, and discussions with ETS and EDPSO.	9/20/2019	Closed as a replacement solution was approved by DLIR. As a comprehensive analysis was not prepared and there is still a need for additional clarification regarding certain aspects of the replacement solution, Accuity will continue to monitor plans for AWS security under finding 2019.07.IT07, AWS M&O roles and responsibilities under the new preliminary concern 2019.10.IT02, and AWS costs under finding 2019.07.PM12.
							2019.07.IT01.R2	Prepare a comprehensive technical analysis of the alternative solution.	•Include the impact of the alternative solution to project cost, schedule, resources, security, maintenance and operations, system software, hardware integration requirements, performance requirements, and required infrastructure to ensure a complete and successful working solution. •Clearly define what needs to be completed, who is responsible, steps for completion, and timing. •Considerations for impact on project cost includes costs related to the following: * Processing, storage and connectivity * Operating system and database management licensing * Interfacing technologies * Maintenance and operations * Data center, collocation facilities and availability requirements * If it is decided that FileNet is the most cost effective and efficient solution, renewal and ongoing costs of FileNet enterprise licensing •Considerations for impact on project schedule, time estimates, and resources include: * Acquisition, installation, and configuration of software and infrastructure * Ongoing maintenance and operations (patching, updates) * Performance of security assessments * Change and configuration management				

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System Software, Hardware and Integrations	2019.07.IT02	Risk	High	Moderate	An unclear interface solution may impact the design process and require additional effort to correct.	The Content Management Design (version 1.0) document was approved by DLIR on May 6, 2019. Case Management is currently in the design phase and design documents have not been provided. Although the Content Management design document was completed and Case Management design is in progress, the exact interface solution has not been defined. The interfaces between Content and Case Management are integral to the success of the project and should be fully defined in design documents in accordance with industry standards. Due to the recent DHS development, the interface options will need to also be researched and analyzed depending on the alternative solution selected. However, even prior to this development, DLIR did not have a clear understanding of the interface solution as well as the complete technical solution. DLIR still had questions about the interface solution regarding the technology, connectivity, batch vs. real-time, security, cost and maintenance of the proposed interface solution between Salesforce and FileNet. The interface solution should be clearly analyzed, documented, mapped to project requirements, and communicated to DLIR.	2019.07.IT02.R1	Document the interface solution and analysis.	Documentation should provide a clear understanding on the interface solution including the following: * How Salesforce will query the selected Content Management solution * How files are uploaded to selected Content Management solution from Salesforce * How metadata is uploaded into Salesforce * Who is responsible for setup, configuration, and maintenance and the steps required for implementation * What are the costs associated for development and long-term maintenance	Open	09/20/19: Accuity decreased the severity rating from Level 1 (High) to Level 2 (Moderate). DataHouse included a narrative about the interface components in the Case Management Design Document. Furthermore, DataHouse organized two demos of 1) the Salesforce application using an interface/API to get to a web service and 2) another web service using an iFrame and IBM ICN to get to FileNet. Accuity will continue to evaluate the interface solution as additional details are finalized and development progress using the actual solution components is made.		
							2019.07.IT02.R2	Update the project schedule to define resources assigned to each of the interface-related activities.					
							2019.07.IT02.R3	Verify the proposed interface solution will work.					
Design	2019.07.IT03	Issue	High	Moderate	The Content Management design documents were based on incomplete, inaccurate, and outdated requirements.	Case Management is currently in the design phase and design documents have not been provided. The Content Management Design (version 1.0) approved by DLIR on May 6, 2019. The recent DHS development will require design documents to be updated after an alternative Content Management hosting infrastructure solution is selected. However, even prior to this development, the Content Management design documents were drafted based on requirements documentation that is incomplete (refer to finding 2019.07.PM10). The requirements document deficiencies should be remediated immediately and the design documents updated accordingly.	2019.07.IT03.R1	Update the Content Management design documents.	Consider updates for revised requirements documents (refer to finding 2019.07.PM10) and for the alternative Content Management hosting infrastructure solution (refer to finding 2019.07.IT01).	Open	09/20/19: Accuity decreased the severity rating from Level 1 (High) to Level 2 (Moderate). DataHouse updated the Content Management Design Document to include additional, more detailed requirements. As noted above at finding 2019.07.PM10, DataHouse is in the process of updating the requirements documentation to include all requirements from the DataHouse contract. Accuity will continue to evaluate the Content Management design document for accurate and complete requirements.		
Data Conversion	2019.07.IT04	Risk	Moderate	Moderate	A Content Management data conversion plan that is based on incomplete, inaccurate, and outdated requirements may impact the data migration design process and require additional effort to correct.	Case Management is currently in the design phase and data conversion documents have not be drafted. The Content Management Conversion and Migration (version 0.0) document was drafted by DataHouse on June 13, 2019 but was not yet approved by DLIR. The document was drafted based on requirements documentation that is incomplete (refer to finding 2019.07.PM10). Furthermore, the Content Management Conversion and Migration (version 0.0) document included a risk that changes to the requirements after a certain point in the project may cause additional effort to re-factor the migration design process. As data conversion is the process of converting data from one source to suit the system requirements of another, it is important that the data conversion plan is based on accurate system requirements. The requirements document deficiencies (refer to finding 2019.07.PM10) should be remediated immediately and the data conversion plan updated accordingly.	2019.07.IT04.R1	Update the Content Management data conversion plan.	Consider updates for revised requirements documents (refer to finding 2019.07.PM10).	Open	09/20/19: Accuity has kept the severity rating as Level 2 (Moderate). The Content Management Conversion and Migration Plan (version 1.1) was updated on 09/05/19 before the Content Management Design Document (version 1.1) was updated on 09/15/19 to include additional design requirements. Changes to requirements should be evaluated for the impacts on the conversion and migration plans and the detailed taxonomy mapping. Accuity will continue to evaluate the process for how changes in system requirements are reviewed to determine if there is any impact to conversion plans including the detailed taxonomy mapping and how changes to conversion plans including decisions to migrate or not migrate specific data are communicated to impacted stakeholders.		
Quality Management and Testing	2019.07.IT05	Risk	Moderate	Moderate	Not having an approved quality management plan and assigned quality assurance resources may impact the quality of project deliverables.	The Quality Management Plan (version 0.1) was drafted by DataHouse on June 23, 2019 but was not yet approved by DLIR. The draft plan did not include quality metrics, quality standards, or quality objectives of the project and does not describe how quality control results will be documented or reported. Additionally, the Quality Assurance Lead identified in DataHouse's BAFO is not assigned to the project team at this time. As it is almost eleven months into the eCMS Project and several deliverables were already approved and many are pending approval, it is important for a quality management plan to be formalized and resources assigned to perform quality management activities.	2019.07.IT05.R1	Finalize the quality management plan.	•DataHouse and DLIR should collaborate and agree on the quality management processes and metrics that will best serve this project. •Include quality standards or reference to specific criteria (refer to finding 2019.07.PM03). •Update the project schedule to assign quality assurance resources (refer to finding 2019.07.PM14).	Open	09/20/19: Accuity has kept the severity rating as Level 2 (Moderate). The DataHouse Project Manager communicated that DataHouse's quality management responsibilities are specific to deliverables and testing. As such, Accuity will work with DLIR to understand what additional quality management activities and metrics need to supplement the DataHouse quality management plan. Accuity will continue to evaluate the quality management plan and activities.		
							2019.07.IT05.R2	Perform quality management activities on previously approved or submitted deliverables.					
Configuration Management	2019.07.IT06	Risk	Moderate	Moderate	A lack of a configuration management plan may impact the performance and quality of the system if unauthorized or untested changes are promoted between environments.	A configuration management plan has not yet been drafted. DataHouse plans to prepare a configuration management plan by October 11, 2019. Based on the current project plan, the eCMS Project was supposed to begin the Build stage of Phase 1. Although the recent DHS development will likely delay the start of the Build stage, not having a configuration management plan in place increases the concern that changes may not be properly tested, accepted and approved which may impact system performance or quality.	2019.07.IT06.R1	Develop a formal configuration management plan.	•Ensure the plan is in accordance with IEEE 828-2012 – Standard for Configuration Management in Systems and Software Engineering and includes the configuration management planning process, configuration identification process, configuration change control process, configuration status accounting process, configuration auditing process, interface control process, and release management process. •DataHouse and DLIR should collaborate and agree on the configuration management plan purposes and processes that will best serve this project.	Open	09/20/19: Accuity has kept the severity rating as Level 2 (Moderate). Although Accuity obtained a better understanding of configuration management through interviews of the Content Management and Case Management development teams, DataHouse is still in the process of finalizing and documenting a configuration management approach. Accuity will continue to evaluate the configuration management plan and approach.		
Security	2019.07.IT07	Risk	Moderate	Moderate	Not having an approved security management plan in place may impact the security and privacy of the data.	The Security Management Plan (version 0.0) was prepared by DataHouse on June 3, 2019 but was not yet approved by DLIR. Based on the current project plan, the eCMS Project was supposed to begin the Build stage of Phase 1. Although the recent DHS development will likely delay the start of the Build stage, not having a security management plan in place may result in improperly defined security requirements and may preclude the adequacy of the system to support the data needs of the system. Security controls should be defined in the security management plan and implemented as part of an organization-wide process that manages information security and privacy risk.	2019.07.IT07.R1	Ensure the security management plan meets specific standards.	•Consider the industry standards and best practices above. •DataHouse and DLIR should collaborate and agree upon the specific standards that will best serve this project.	Open	09/20/19: Accuity has kept the severity rating as Level 2 (Moderate). The security management plan has not yet been finalized and also needs to be updated to include AWS security plans (from finding 2019.07.IT01). DataHouse plans to complete the security management plan updates in October 2019. Accuity will continue to evaluate the security management plan.		
							2019.07.IT07.R2	Finalize the security management plan.					

Appendix E: Comment Log on Draft Report

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DLIR DCD eCMS Project: IV&V Document Comment Log				
ID #	**Page #**	**Comment**	**Commenter's Organization**	**Accuity Resolution**
1	8	**Project Management** Project Organization and Management: DataHouse included DLIR in more development meetings and DLIR and DataHouse are working more collaboratively for project planning, execution, and deliverable review. DataHouse began to delineate some DLIR responsibilities for data conversion, however, clarification of roles and responsibilities is still needed in areas such as testing, quality management, and Scrum Product Owners. Project changes were not managed in accordance with prescribed processes. **Deliverable review sessions continue to be scheduled as requested by DCD.** **An "Agile Crash Course" was held on 10/21/2019 for the project's product owners so they could better understand their role and responsibilities for tasks within the Agile methodology.** **With Epic 2+, product owners will participate in the planning and retrospective.** **Change log to be provided.**	DataHouse	This report includes the project status and assessment as of September 20, 2019. For activities and deliverables provided after September 20, 2019 (including the Agile Crash Course, Epic 2+ and Change Log), Accuity will continue to receive and monitor them for future Monthly IV&V Review reports. No change to the report.

2	8	**Project Management** Scope and Requirements Management: DataHouse improved requirements documentation and the Requirements Traceability Matrix (RTM) to include more detailed and specific requirements. DataHouse plans to make further enhancements to the RTM to ensure requirements are complete and improve traceability. Additionally, the processes of approving new requirements and prioritizing requirements within the system development sprints need to be formalized. Requirements management is critical due to its impact on system development, testing, and ultimately system acceptance. **All requirements listed in the DataHouse contract have been included in the RTM.**	DataHouse	Accuity noted that the RTM included more detailed and specific requirements in the report. As of September 20, 2019, the DataHouse Project Manager was continuing to complete and refine RTM. Accuity will continue to receive and monitor requirements documentation and assess whether the contract requirements are incorporated into the Case and Content Management user stories/cases for future Monthly IV&V Review reports. No change to the report.
3	8	**Project Management** Cost, Schedule and Resource Management: DataHouse added details to the project schedule, however, the schedule still does not include sufficient details to assess the over-allocation of resources, identify critical paths, or accurately report project progress. Cost management and resource management processes have not yet been defined. **Depending on the task, the resource listed is the person "responsible" for follow up on effor, and not necessarily the one doing the work. Adding allocation percentages to resources where appropriate.**	DataHouse	The resource assignments should include the individuals performing the project tasks to evaluate workloads and assess over-allocation of resources. A project schedule with details of tasks, durations, and assigned resources helps prevent project delays, unrealistic schedule forecasts, and tasks with insufficient resources. No change to the report.
PM02	11	DLIR DCD will be working with DataHouse to define and understand the roles and responsibilities of both parties in the PMP and Project charter	DLIR DCD	This was just a preliminary concern requiring further analysis. Accuity will assess new information received and progress in this area in the next Monthly IV&V Review report. No change to the report.
4	12	Technology System Software, Hardware and Integrations: Delays in the approval of the new WC forms has hindered development of the Content Management solution with the go-live date pushed back to January 2020. AWS was approved as the replacement Content Management hosting infrastructure solution. The Case Management development sprints began in August 2019. DataHouse provided additional details on integrations and preliminary evidence of integration viability. Maintenance and Operations (M&O) roles and responsibilities are unclear. **Integration/interface details will continue to be added to design documentation.**	DataHouse	Accuity will assess new information received and progress in this area in the next Monthly IV&V Review report. No change to the report.

5	12	Technology Design: The Content Management design document was updated to include additional, more detailed requirements. The Case Management design document was approved in August 2019. Continuous and timely user input on design and feedback on developed features is built into the iterative Scrum methodology employed for Case Management development. **Content Management and Case Management Design documents were revised as of 10/15/2019 and 10/18/2019, respectively. The Content Management Design document was approved by DCD on 10/23/2019.** **AWS information will be added to the design documentation in the near future.**	DataHouse	This report includes the project status and assessment as of September 20, 2019. For activities and deliverables provided after September 20, 2019, Accuity will continue to receive and monitor them for future Monthly IV&V Review reports. No change to the report.
6	12	Data Conversion: The Content Management and Case Management Conversion and Migration Plans were approved in September 2019. Significant additions and changes to Content Management requirements need to be evaluated for any impacts to the data conversion plans and data conversion activities scheduled to begin in October 2019. The unsupported legacy Case Management system may impact data conversion plans. **While the requirements for Content Management were elaborated/expanded upon in the revised Content Management Design, v1.1, it did not change the conversion requirements. The conversion requirements documented in the Content Management Conversion & Migration, v.1.1 are still appropriate.** **Regarding the unsupported legacy Case Manager application, processes are already in place at DLIR-DCD for daily backups of the Lotus Notes database files. In addition, DLIR-DCD will periodically provide updated Lotus Notes backup files to DataHouse to refresh the data for its conversion efforts. This separate Case Manager environment with updated production data could be used as the source for the conversion and migration if the production Case Manager were not available.**	DataHouse	Accuity agrees that the additional requirements did not impact the high-level conversion requirements in the current version of the data conversion plan, however, changes in requirements may impact the detailed taxonomy mapping in section 2.5.11 of the plan including changes in what data is not migrated. Based on a discussion with the DataHouse Project Manager on 11/4/19, although the requirements in the Content Management Design Document Version 1.1 were updated on 09/15/19 which was after the Content Management Migration and Conversion Version 1.1 was updated on 09/05/19, the taxonomy mapping in the current conversion plan was updated for the latest requirements. Accuity changed the severity rating from a yellow trending down to a yellow for data conversion, however, the finding will remain open. Accuity will review the latest taxonomy mapping and evaluate the process for how changes in system requirements are reviewed and updated in the conversion plans including the detailed taxonomy mapping and how changes to conversion plans including decisions to migrate or not migrate specific data are approved by or communicated to impacted stakeholders. Updates were made on page 6 and 12 and Appendix D. As for the unsupported legacy Case Manager, the separate Case Manager environment currently held in DataHouse cloud partially mitigates the unsupported application risk in regards to loss of data but it would not allow DLIR to continue to work and record new case data through the go-live date

				of the new system should their system go down which may have an impact on the data conversion process. This was just a preliminary concern requiring further analysis. No change to the report.
IT02	15	DLIR DCD acknowledges this and will be monitoring this – OETS is going thru changes regarding staff however, they have hired an OCM Coordinator	DLIR DCD	This was just a preliminary concern requiring further analysis. Accuity will monitor the involvement of the OETS OCM Coordinator and assess progress in this area in future Monthly IV&V Review reports. No change to the report.
IT03	16	DLIR DCD is monitoring this with SPO. DCD does have a backup plan – i.e. we have a separate service contract to help us with IBM Lotus. SPO is working with another vendor that is HCE compliant to provide the maintenance service required. It should also be noted that DLIR DCD continues to perform daily backups to the system in an effort to mitigate potential impacts in case of system failure.	DLIR DCD	This was just a preliminary concern requiring further analysis. Accuity clarified with the DLIR Project Manager that the separate service contract is still pending execution. Accuity will assess new information received and progress in this area in the next Monthly IV&V Review report. No change to the report.
Documents	26	DLIR DCD is working on the budget spreadsheet	DLIR DCD	Accuity received the budget spreadsheet and updated pages 4 and 5 of the report.
APP D-PG02	1	On 10/11/2019, the DLIR Executive Steering Committee met (second meeting since formalized). At this meeting, several metrics were identified, and appropriate actions would be taken: • Budget – if there is a change of more than 10% of the contract, • Timeline – follow 30-60-90 days, anything after 90 days will be addressed • Scope – if there are changes in scope or contract	DLIR DCD	This report includes the project status and assessment as of September 20, 2019. For activities and deliverables provided after September 20, 2019, Accuity will continue to receive and monitor them for future Monthly IV&V Review reports. No change to the report.
APP D-PG05	1	Success Metrics have been defined by DCD Business Manager – They are still being reviewed and worked on. The goal is to provide: • Timely responses to customer inquiries • Accurate and secured data • Statutory compliance and education Additionally, working on the Website to provide more communication to external stakeholders.	DLIR DCD	This report includes the project status and assessment as of September 20, 2019. For activities and deliverables provided after September 20, 2019, Accuity will continue to receive and monitor them for future Monthly IV&V Review reports. No change to the report.
APP D-PM03	2	Same as PM02	DLIR DCD	Accuity will assess new information received and progress in this area in the next Monthly IV&V Review report. No change to the report.
APP D-PM05	2	Same as PM02	DLIR DCD	Accuity will assess new information received and progress in this area in the next Monthly IV&V Review report. No change to the report.
APP D-PM06	3	DLIR DCD and DH PMs have daily calls, texts, and/or go-to meetings as needed.	DLIR DCD	The Finding status update already recognizes the daily communication. No change to the report.
APP D-PM07	3	DLIR DCD conducted an all-hands divisional meeting on 10/1/2019 (included the neighbor island staff). External parties invited were OETS, Team DH, Accuity, EDPSO, Director's Office, and HGEA. DLIR DCD provided an update on the eCMS	DLIR DCD	The Finding status update already recognizes the two divisional stakeholder meetings. No change to the report.

		Modernization Project, answered questions and concerns, and informed the staff what will be happening the next 12 months.		
APP D-PM08	3	DLIR DCD will continue to experience OCM issues until positions are filled and staff trained. DCD has a core group that will be used for testing regardless of where they are in DCD.	DLIR DCD	Statement from DLIR DCD. No change to the report.
APP D-PM09	3	DLIR DCD's Risk Manager will continue to monitor and identify risks/issues into the RAID log. This RAID log will be linked to the DH RTM log and the QM Log, Success Metrics log, and the UAT log.	DLIR DCD	The Finding status update already recognizes the role of the DCD Risk Manager. Accuity will assess the linking of the RAID log to other project documents. No change to the report.
APP D-PM10	4	Same as PM02	DLIR DCD	Accuity will assess new information received and progress in this area in the next Monthly IV&V Review report. No change to the report.
APP D-PM11	4	Same as PG05	DLIR DCD	This report includes the project status and assessment as of September 20, 2019. For activities and deliverables provided after September 20, 2019, Accuity will continue to receive and monitor them for future Monthly IV&V Review reports. No change to the report.
APP D-PM12	4	DLIR DCD is working on the budget spreadsheet	DLIR DCD	Statement from DLIR DCD. No change to the report.
APP D-PM13	5	DLIR DCD PM and DH PM's are collaborating more via emails, texts, phone calls and/or goto meetings	DLIR DCD	The Finding status update already recognizes the daily communication under PM06. No change to the report.
APP D-PM14	5	DLIR DCD is considering resource sharing	DLIR DCD	Statement from DLIR DCD. No change to the report.
APP D-IT02	6	DLIR DCD will continue to monitor.	DLIR DCD	Statement from DLIR DCD. No change to the report.
APP D-IT03	6	DLIR DCD will continue to monitor.	DLIR DCD	Statement from DLIR DCD. No change to the report.
APP D-IT04	6	DLIR DCD will continue to monitor. Data conversion plan in preliminary stages.	DLIR DCD	Statement from DLIR DCD. No change to the report.
APP D-IT05	6	DLIR DCD will continue to monitor. Data conversion plan in preliminary stages.	DLIR DCD	Statement from DLIR DCD. No change to the report.
APP D-IT06	6	DLIR DCD will continue to monitor. Data conversion plan in preliminary stages.	DLIR DCD	Statement from DLIR DCD. No change to the report.
APP D-IT07	6	DLIR DCD will continue to monitor. Data conversion plan in preliminary stages.	DLIR DCD	Statement from DLIR DCD. No change to the report.

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