

OFFICE OF ENTERPRISE TECHNOLOGY SERVICES

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December 26, 2023

The Honorable Ronald D. Kouchi President of the Senate and Members of the Senate Thirty-Second State Legislature State Capitol, Room 409 Honolulu, Hawaii 96813 The Honorable Scott K. Saiki Speaker and Members of the House of Representatives Thirty-Second State Legislature State Capitol, Room 431 Honolulu, Hawai'i 96813

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

Pursuant to HRS section 27-43.6, which requires the Chief Information Officer to submit applicable independent verification and validation (IV&V) reports to the Legislature within 10 days of receiving the report, please find attached the report the Office of Enterprise Technology Services received for the State of Hawai'i, Department of Attorney General (AG), Child Enforcement Agency (CSEA).

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

Sincerely,

Douglas Murdock (Dec 26, 2023 14:02 HST)

Douglas Murdock Chief Information Officer State of Hawai'i

Attachment



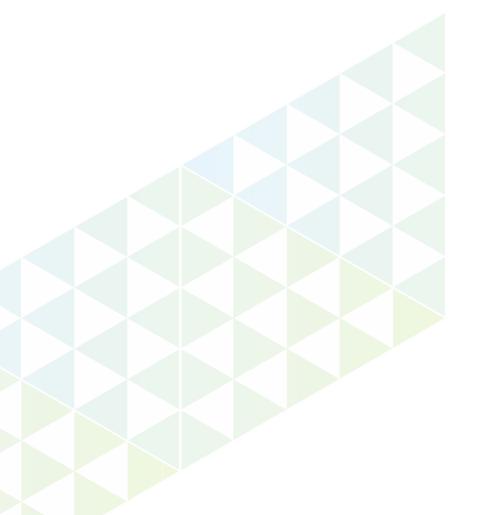
MONTHLY IV&V REVIEW REPORT

November 30, 2023 | Version 1.0





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Document History

DATE	DESCRIPTION	AUTHOR	VERSION
12/11/23	Monthly IV&V Review Report Draft created.	Julia Okinaka	0.0
12/22/23	Report draft was updated to make correction on page 7 which is also reflected in the Comment Log. Additional comment and response was included in Appendix D which did not result in changes to the report.	Julia Okinaka	1.0



BACKGROUND

The State of Hawaii (State), Department of Attorney General (AG), Child Enforcement Agency (CSEA) contracted Protech Solutions, Inc. (Protech) on October 2, 2023 to replatform the Keiki System and provide ongoing operations support. Protech has subcontracted One Advanced and DataHouse to perform specific project tasks related to code migration, replatforming services, and testing. Department of AG contracted Accuity LLP (Accuity) to provide Independent Verification and Validation (IV&V) services for the project.

Our initial assessment of project health was provided in the first Monthly IV&V Review Report as of October 31, 2023. Monthly IV&V review reports will be issued through September 2024 and build upon the initial report to continually update and evaluate project progress and performance.

Our IV&V Assessment Areas include People, Process, and Technology. Each month we will select specific IV&V Assessment Areas to perform more focused IV&V activities on a rotational basis. The focus of our IV&V activities for this report included the completion of a two-month assessment of Technology and the beginning of a two-month assessment of Process.

The IV&V Dashboard and IV&V Summary provide a quick visual and narrative snapshot of both the project status and project assessment as of November 30, 2023. Ratings are provided monthly for each IV&V Assessment Area (refer to Appendix A: IV&V Criticality and Severity Ratings). The overall rating is assigned based on the criticality ratings of the IV&V Assessment Categories and the severity ratings of the underlying observations.

PROJECT PLANNING

"Good fortune is what happens when opportunity meets with planning."

- Thomas Edison



PROJECT ASSESSMENT

NOVEMBER 2023

SUMMARY RATINGS

OVERALL RATING



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

PEOPLE



PROCESS



TECHNOLOGY



CRITICALITY RATINGS

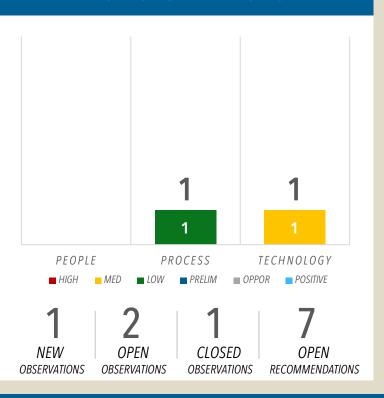








IV&V OBSERVATIONS



PROJECT BUDGET *

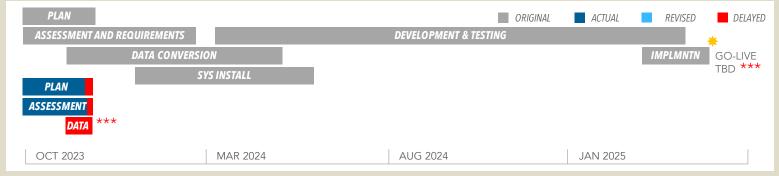


PROJECT PROGRESS**



KEY PROGRESS & RISKS

- The project is showing positive momentum, team collaboration, and progress towards accomplishing project tasks; however, the project schedule does not outline all CSEA tasks and is already showing signs of delays.
- The proposed project timeline may be pushed an additional 6 months to September 2025. An accurate and realistic schedule reflecting more detailed project activities and resources is still pending.
- Inadequate data system migration requirement identification, tracking, and validation could lead to schedule delays, unmet contract requirements, and quality issues.



*** The timeline changed and the revised project schedule is pending approval. Data Conversion activities will begin in December 2023.

NOVEMBER 2023 · KROM PROJECT

ОСТ	NOV	DEC	IV&V ASSESSMENT AREA	IV&V SUMMARY						
G	G	NA	Overall The project is showing positive momentum, team collaboration, and progress towards acc project tasks; however, the project schedule does not outline all CSEA tasks and is already signs of delays. IV&V cannot adequately evaluate the activities and deliverables of Protech schedules, and processes are still under development and review.							
				Project Schedule: The draft project schedule is under CSEA review, and preliminary due dates for deliverables continue to be delayed (2023.10.002). The proposed project schedule with initial 18-month timeline may be pushed an additional 6 months to September 2025 needed for the user interface customization and implementation. An accurate and realistic schedule reflecting more detailed project activities and resources is still pending.						
				Project Costs: As the project's timeline is being revised, Protech is revising their payment schedule to align to the updated schedule of deliverables. The overall project cost will remain the same.						
				Quality: CSEA and Protech should work together to establish meaningful quality management metrics. The Project Management Plan's completion date, which will incorporate quality management, was revised to December 2023.						
				Project Success: A Project Charter is under development which defines project success criteria. Accuity will evaluate progress towards achieving project goals when the metrics are finalized.						
G	G	NA	People Team, Stakeholders, & Culture	 The project culture between Protech and CSEA continues to be collaborative. The draft project schedule does not adequately identify all CSEA tasks and individual resource responsibilities, so the availability and capacity of resources required to complete each task is still unclear. As Protech's deliverables continue to fall behind the draft schedule, the need for additional project support for Protech's Manager should be assessed (2023.10.002). Project SMEs continue to be engaged in ongoing application assessment sessions tackling assigned tasks, investigating missing objects, providing information, and responding to questions. Monthly Steering Committee Meetings are established to review project status, risks, and activities. The Project Management Plan will identify project stakeholders and communication activities. 						

NOVEMBER 2023 · KROM PROJECT

ОСТ	NOV	DEC	IV&V ASSESSMENT AREA	IV&V SUMMARY
G	G	NA	Process Approach & Execution	 IV&V promoted the preliminary finding regarding untimely project management responsibilities to a formal risk. In November, Protech delivered a number of draft deliverables including the Project Management Plan, Project Schedule, System Requirements Definition Deliverable Expectation Document (DED), and System Test Plan DED. The delivery of the final Project Management Plan and Project Schedule are slightly delayed and expected to be finalized in December 2023. Four additional deliverables are projected to be delayed. IV&V conducted a detailed review of the Project Management Plan resulting in a formal Deliverable Observation Report resulting in 37 deliverable comments, and additional observations and risks for CSEA management consideration. Risks continue to be logged and discussed during weekly project meetings. As the number of risks have grown, the project should consider having separate recurring risk meetings to ensure they are addressed timely. Weekly status reports are reviewed in recurring project team meetings, and a monthly status report is presented during Monthly Steering Committee meetings. Key project processes and metrics will be defined in the Project Management Plan and Project Charter. CSEA should review their current draft project success metrics to ensure they are specific, measurable, and time-bound.
G	©	NA	Technology System, Data, & Security	 The assessment and code collection activities are 74% complete. Recurring technical architecture meetings will start in December to determine KEIKI system hardware and software assets. Complex data system migration requirements, combined with incomplete documentation and the absence of a formalized process for non-code tasks, may lead to project delays, unmet contract requirements, and quality issues (2023.11.001). The roles, responsibilities, and processes related to identifying and tracking the remaining non-code KEIKI application assets, such as interfaces and batch files, still need to be clearly defined. The System Test Plan DED was submitted for CSEA review. Risks continue to be identified and reported related to printing, code refresh, user interface, and conversion scope. Accuity recommends that a separate recurring risk meeting be established.* *Accuity is not reporting individual risks as formal IV&V observations as they are already being appropriately tracked and monitored by the project team. The rating for this IV&V Assessment Area reflects the cumulative risks.

IV&V ASSESSMENT ARFAS

People

Process

Technology

OBSERVATION #: 2023.10.002

STATUS: OPEN

TYPE: RISK

SEVERITY:

3

TITLE: UNTIMELY PROJECT MANAGEMENT RESPONSIBILITIES

Observation: Untimely project management responsibilities may impact effective project execution.

Industry Standards and Best Practices: PMI PMBOK describes the best practices for project planning, schedule, cost, quality, and resource management.

Analysis: The Protech Project Manager provided a draft project schedule; however, it was incomplete and listed due dates that were already missed for several deliverables. The implementation of strong schedule and resource management practices early will help the project start off right and stay on track. Protech's Project Manager is experienced with similar implementations and is working collaboratively with the project team to address feedback.

Possible root causes or contributing factors are turnover of project managers, an aggressive project timeline, and need for additional project management support. Another possible root cause is Protech's need to revisit the project RFP and submitted proposal to reduce the misalignment of expectations, creating longer deliverable review cycles.

Feedback on preliminary deliverables does not appear to be adequately addressed. For example, the need for a resource loaded schedule was communicated verbally and in meetings repeatedly.

Recommendation: 2023.10.002.R1 – Improve the project schedule to address schedule comments.

- Develop a detailed plan with assigned resources to complete project tasks.
- Provide the appropriate detail of tasks, durations, due dates, milestones, and key work products for various parties. CSEA assigned tasks should also be clearly reflected in the project schedule.
- Obtain agreement on the baseline schedule and then hold parties accountable for tasks and deadlines.

2023.10.002.R2 – Determine the root causes of delays and develop plans to address them.

- Perform a root cause analysis including defining the problem, brainstorming possible causes, and developing a plan to address the root cause of the problem such as resource constraints and undefined tasks.
- Based on the experience of the last two months, create a realistic schedule based on the time and resources needed to perform tasks.

2023.10.002.R3 – Assess the need for additional Protech resources for project management support.



IV&V ASSESSMENT AREAS

People

Process

Technology

OBSERVATION #: 2023.11.001

STATUS: OPEN

TYPE: RISK

SEVERITY:



TITLE: TRACKING AND VALIDATING DATA SYSTEM MIGRATION REQUIREMENTS

Observation: Complex data system migration requirements, combined with incomplete documentation and the absence of a formalized process for non-code tasks, may lead to project delays, unmet contract requirements, and quality issues.

Industry Standards and Best Practices: IEEE 12207-2017 provides guidelines for the software life cycle processes, including requirements identification and tracking, design, coding, testing, maintenance, and quality assurance. DAMA-DMBOK2 discusses the process of transferring data between storage types, formats and computer systems with as little change as possible.

Analysis: Data system migration and mapping can be complex and cause project delays if not properly planned and managed. The KEIKI system's incomplete documentation and multitude of jobs, workflows, interfaces, and interface files pose a risk of overlooking certain elements, making it challenging to track and validate migration requirements.

The project lacks a formalized process for non-code tasks in the data system requirements collection, migration, and validation activities. The project has a formalized process for application code migration but lacks a clear process for gathering non-code and ancillary elements including hardware, software, interfaces, and batch files. The absence of a separate, formalized process and reliance on manual processes using Excel worksheets may result in data loss, poor quality, and technical issues affecting system performance and user experience.

The SI's waterfall approach requires upfront gathering and definition of all requirements in a linear sequence. Late identification of data system migration requirements may result in insufficient time or budget to execute the migration properly.

Recommendation: 2023.11.001.R1 – Develop separate formalized data system migration plans and processes for non-code elements.

- A separate implementation plan should be clearly outlined, determining the timeline, tasks, tools, and resources needed to perform these activities.
- Develop a formalized data migration acceptance process for the remaining cycles with defined acceptance criteria.
- Determine what validation is needed by other agencies and stakeholders that rely on CSEA's Keiki system and outputs.



IV&V ASSESSMENT ARFAS

People

Process

Technology

OBSERVATION #: 2023.11.001

STATUS: OPEN

TYPE: RISK

SEVERITY:



TITLE: TRACKING AND VALIDATING DATA SYSTEM MIGRATION REQUIREMENTS (CONTINUED)

2023.11.001.R2 – Investigate automated tools for tracking and validating data system requirements.

• Automated data validation should be investigated to help identify missing elements, increase data accuracy, and alleviate resource constraints.

2023.11.001.R3 – Ensure data system requirements are comprehensive and complete upfront.

- Given the waterfall approach, schedule and resource considerations should be given to increasing system requirement gathering upfront.
- The project managers should ensure greater coordination of project information needed for requirements management and tracking.
- Consider an iterative approach for non-code migration activities, which allows for several rounds of review and validation.

2023.11.001.R4 – Appoint dedicated Data System Migration Leads from both Protech and CSEA.

• Consider identifying dedicated leads to assist with analyzing the existing data environment, identifying data migration requirements, supporting the migration process, troubleshooting issues that arise, and coordinating tasks with Protech, Advanced, Datahouse, and CSEA.



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. 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, the overall impact of the related observations to the success of the project, and the urgency of and length of time to implement remediation or risk mitigation strategies. Arrows indicate trends in the project assessment from the prior report and take into consideration areas of increasing risk and approaching timeline. Up arrows indicate adequate improvements or progress made. Down arrows indicate a decline, inadequate progress, or incomplete resolution of previously identified observations. No arrow indicates there was neither improving nor declining progress from the prior report.





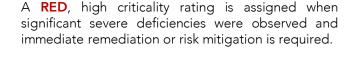












A YELLOW, medium criticality rating is assigned when deficiencies were observed that merit attention. Remediation or risk mitigation should be performed in a timely manner.

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



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



Severity Rating

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

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

Observations that are positive, preliminary concerns, or opportunities are not assigned a severity rating.



SEVERITY 1: High/Critical level



SEVERITY 2: Moderate level



SEVERITY 3: Low level



POSITIVE

Celebrates high performance or project successes.

PRELIMINARY CONCERN

Potential risk requiring further analysis.



Appendix B: Industry Standards and Best Practices

STANDARD	DESCRIPTION				
ADA	Americans with Disabilities Act				
ADKAR®	Prosci ADKAR: Awareness, Desire, Knowledge, Ability, and Reinforcement				
BABOK® v3	Business Analyst Body of Knowledge				
DAMA-DMBOK® v2	DAMA International's Guide to the Data Management Body of Knowledge				
PMBOK® v7	Project Management Institute (PMI) Project Management Body of Knowledge				
SPM	PMI The Standard for Project Management				
PROSCI ADKAR®	Leading organization providing research, methodology, and tools on change management practices				
SWEBOK v3	Guide to the Software Engineering Body of Knowledge				
IEEE 828-2012	Institute of Electrical and Electronics Engineers (IEEE) Standard for Configuration Management in Systems and Software Engineering				
IEEE 1062-2015	IEEE Recommended Practice for Software Acquisition				
IEEE 1012-2016	IEEE Standard for System, Software, and Hardware Verification and Validation				
IEEE 730-2014	IEEE Standard for Software Quality Assurance Processes				
ISO 9001:2015	International Organization for Standardization (ISO) Quality Management Systems – Requirements				
ISO/IEC 25010:2011	ISO/International Electrotechnical Commission (IEC) Systems and Software Engineering – Systems and Software Quality Requirements and Evaluation (SQuaRE) – System and Software Quality Models				
ISO/IEC 16085:2021	ISO/IEC Systems and Software Engineering – Life Cycle Processes – Risk Management				
IEEE 16326-2019 ISO/IEC/IEEE International Standard – Systems and Software Engineering – Life Cycle Project Management					
IEEE 29148-2018	ISO/IEC/IEEE International Standard – Systems and Software Engineering – Life Cycle Processes – Requirements Engineering				

STANDARD	DESCRIPTION						
IEEE 15288-2023	ISO/IEC/IEEE International Standard – Systems and Software Engineering – System Life Cycle Processes						
IEEE 12207-2017	ISO/IEC/IEEE International Standard – Systems and Software Engineering – Software Life Cycle Processes						
IEEE 24748-1-2018	ISO/IEC/IEEE International Standard – Systems and Software Engineering – Life Cycle Management – Part 1: Guidelines for Life Cycle Management						
IEEE 24748-2-2018	ISO/IEC/IEEE International Standard – Systems and Software Engineering – Life Cycle Management – Part 2: Guidelines for the Application of ISO/IEC/IEEE 15288 (System Life Cycle Processes)						
IEEE 24748-3-2020	IEEE Guide: Adoption of ISO/IEC TR 24748-3:2011, Systems and Software Engineering – Life Cycle Management – Part 3: Guide to the Application of ISO/IEC 12207 (Software Life Cycle Processes)						
IEEE 14764-2021	ISO/IEC/IEEE International Standard for Software Engineering – Software Life Cycle Processes – Maintenance						
IEEE 15289-2019	ISO/IEC/IEEE International Standard – Systems and Software Engineering – Content of Life Cycle Information Items (Documentation)						
IEEE 24765-2017	ISO/IEC/IEEE International Standard – Systems and Software Engineering – Vocabulary						
IEEE 26511-2018	ISO/IEC/IEEE International Standard – Systems and Software Engineering – Requirements for Managers of Information for Users of Systems, Software, and Services						
IEEE 23026-2015	ISO/IEC/IEEE International Standard – Systems and Software Engineering – Engineering and Management of Websites for Systems, Software, and Services Information						
IEEE 29119-1-2021	ISO/IEC/IEEE International Standard – Software and Systems Engineering – Software Testing – Part 1: Concepts and Definitions						
IEEE 29119-2-2021	ISO/IEC/IEEE International Standard – Software and Systems Engineering – Software Testing – Part 2: Test Processes						
IEEE 29119-3-2021	ISO/IEC/IEEE International Standard – Software and Systems Engineering – Software Testing – Part 3: Test Documentation						
IEEE 29119-4-2021	ISO/IEC/IEEE International Standard – Software and Systems Engineering – Software Testing – Part 4: Test Techniques						
IEEE 1484.13.1-2012	IEEE Standard for Learning Technology – Conceptual Model for Resource Aggregation for Learning, Education, and Training						
ISO/IEC TR 20000- 11:2021	ISO/IEC Information Technology – Service Management – Part 11: Guidance on the Relationship Between ISO/IEC 20000-1:2011 and Service Management Frameworks: ITIL®						
ISO/IEC 27002:2022	Information Technology – Security Techniques – Code of Practice for Information Security Controls						

STANDARD	DESCRIPTION
FIPS 199	Federal Information Processing Standard (FIPS) Publication 199, Standards for Security Categorization of Federal Information and Information Systems
FIPS 200	FIPS Publication 200, Minimum Security Requirements for Federal Information and Information Systems
NIST 800-53 Rev 5	National Institute of Standards and Technology (NIST) Security and Privacy Controls for Federal Information Systems and Organizations
NIST Cybersecurity Framework v1.1	NIST Framework for Improving Critical Infrastructure Cybersecurity
LSS	Lean Six Sigma

Appendix C: Prior Findings Log



Appendix C: Prior Findings Log

ASSESSMENT AREA	OBSERVATION	TYPE		CURRENT SEVERITY	OBSERVATION	ANALYSIS	RECOMMENDATIONS	STATUS	STATUS UPDATE	CLOSED DATE	CLOSURE REASON
Process	2023.10.002	Risk		Low	Untimely project management responsibilities may impact effective project execution.	The Protech Project Manager provided a draft project schedule; however, it was incomplete and listed due dates that were already missed for several deliverables. The implementation of strong schedule and resource management practices early will help the project start off right and stay on track. Protech's Project Manager is experienced with similar implementations and is working collaboratively with the project team to address feedback. Possible root causes or contributing factors are turnover of project managers, an aggressive project timeline, and need for additional project management support. Another possible root cause is Protech's need to	2023.10.002.R1 – Improve the project schedule to address schedule comments. • Develop a detailed plan with assigned resources to complete project tasks. • Provide the appropriate detail of tasks, durations, due dates, milestones, and deliverables for various parties. CSEA assigned tasks should also be clearly reflected in the project schedule. • Obtain agreement on the baseline schedule and then hold parties accountable for tasks and deadlines. 2023.10.002.R2 – Determine the root causes of delays and develop plans to address them. • Perform a root cause analysis including defining the problem, brainstorming possible causes, and developing a plan to address the root cause of the problem such as resource constraints and undefined tasks. • Based on the experience of the last two months, create a realistic schedule based on the time and resources needed to perform tasks.		11/30/23: This was originally reported in the October 2023 IV&V Monthly Report as a preliminary concern but was upgraded to and rewritten as a risk this month with recommendations. The project is still challenged with insufficiently updating deliverables and continued delays in the proposed project schedule. IV&V will continue to assess project management responsibilities.		
People	2023.10.001	Positive	N/A	N/A	The project team members are engaged and the environment between Protech and CSEA is collaborative.	The CSEA SMEs appear to be engaged in ongoing Assessment sessions and accountable for timely completing required tasks, providing information, and responding to questions. The project team members regularly seek feedback, input, and clarification in an open and respectful manner. The experience and knowledge of Protech team members combined with the dedication and high level of engagement from CSEA SMEs support the positive project team environment.	N/A	Closed	N/A	11/30/23	Closed as this is a positive observation.

Appendix D: Comment Log on Draft Report



Comment Log on Draft Report

KROM Project: IV&V Document Comment Log





ID i	Page#	Comment	Commenter's Organization	Accuity Resolution
1	7	The draft project schedule includes all 22 deliverables that were agreed to by the State. DDI demonstrated this to the State using the views feature in MS Project.	Protech	Under the Recommendations, Accuity revised the word "deliverable" in the recommendation to "key work products". A work product is something that is produced during the course of a project, such as hardware and software data system migration requirement spreadsheet being produced by DDI that requires CSEA resources for input, review, and meetings.
2	9	CSEA has appointed two data system migration leads. One for DATA and one for CODE.	Department of AG, CSEA	This is a status update from CSEA noting implementation of IV&V's recommendation. Progress made on the recommendation will be reflected in the December IV&V report. No changes made to the November IV&V Report.



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