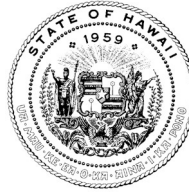


DAVID Y. IGE  
GOVERNOR



DEPT. COMM. INFO 33  
DOUGLAS MURDOCK  
CHIEF INFORMATION  
OFFICER

**OFFICE OF ENTERPRISE TECHNOLOGY SERVICES**

P.O. BOX 119, HONOLULU, HAWAII 96810-0119  
Ph: (808) 586-6000 | Fax: (808) 586-1922  
ETS.HAWAII.GOV

November 4, 2022

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

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

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

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

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

Sincerely,

  
Douglas Murdock (Nov 4, 2022 10:04 HST)

Douglas Murdock  
Chief Information Officer  
State of Hawai'i

Attachment



# Content and Document Management System (CDMS) Project

Hawaii Public Utilities Commission (PUC)

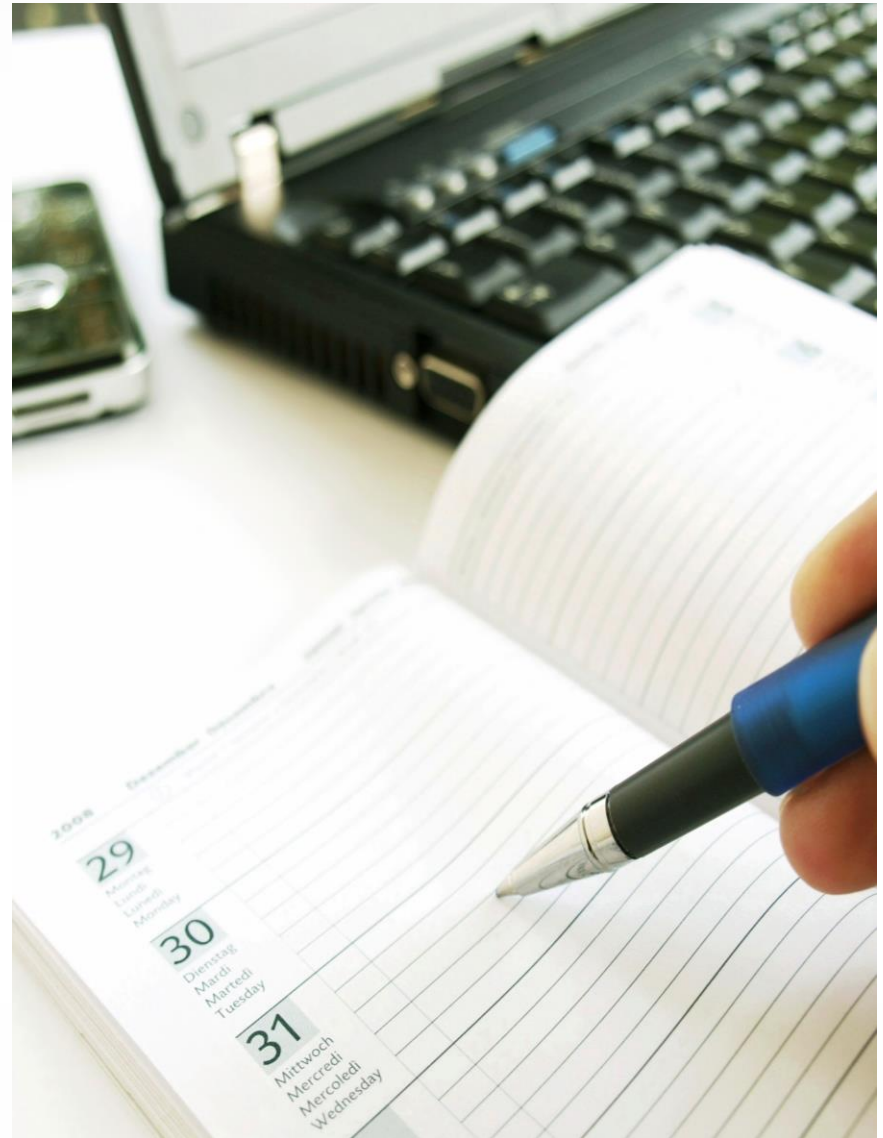
IV&V Monthly Status Report  
For Reporting Period: **April 2022**

*Draft Submitted: 5/11/2022*

*Final Submitted: 5/27/2022*

# Overview

- Executive Summary
- IV&V Findings and Recommendations
- IV&V Preliminary Concerns
- IV&V Scope and Approach
- IV&V Engagement Status
- Appendices
  - A – IV&V Criticality Ratings
  - B – IV&V Inputs
  - C – Upcoming IV&V Activities



# Executive Summary

The SI reported completing approximately 80% of user stories with 2 of 10 development sprints remaining. The SI delivered about 110 user stories in Sprint 7, and they plan to deliver the remaining 300+ of the approximate 1700 total user stories without schedule delay. The SI received productive feedback from the PUC during the recent monthly sprint demo. However, since all the system features developed during the month were not demonstrated and some have been found to be sub-optimal, IV&V and the PUC are increasingly concerned that additional rework may be required, leading to schedule delays.

PUC intends to replace the PUC project manager (PM) in May. The SI removed a development resource whose duties were transferred to their engagement manager. It remains unclear how these changes will impact the project. The SI maintains that they can ramp up with other resources if the need arises to meet the planned go-live date.

The Project appears to be managing project risk thus far and the majority of IV&V identified risks remain a low criticality.



# Executive Summary

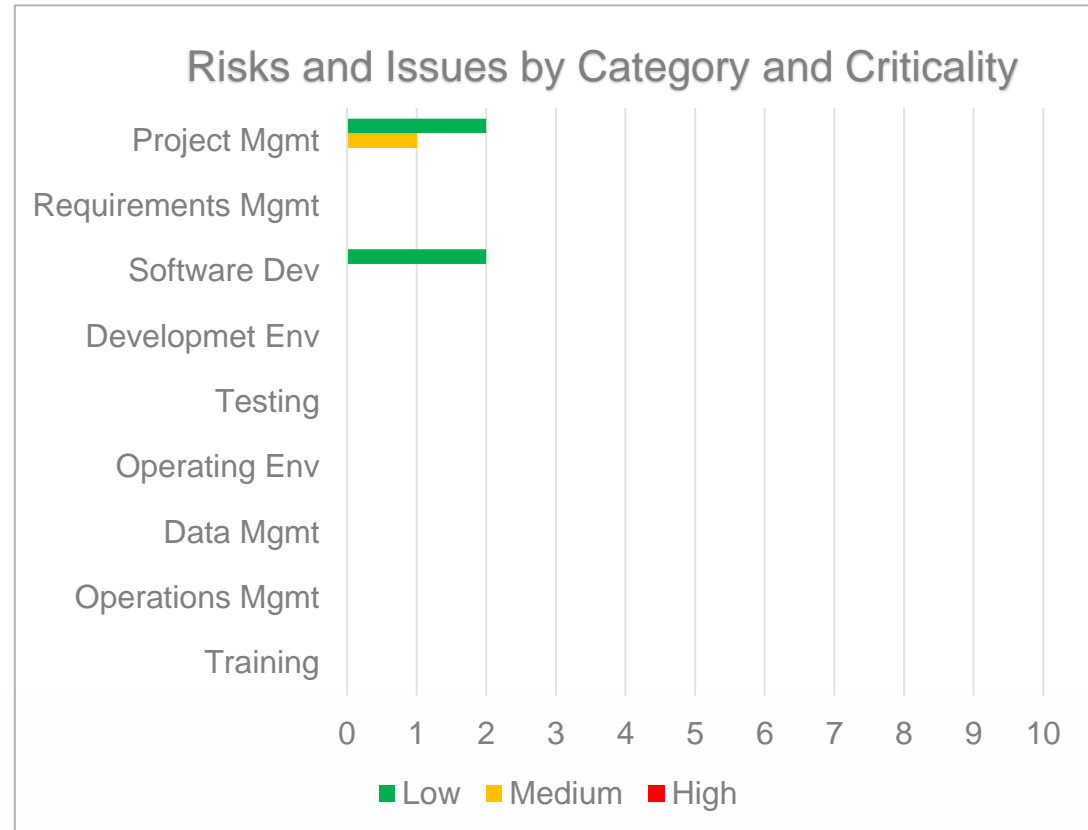
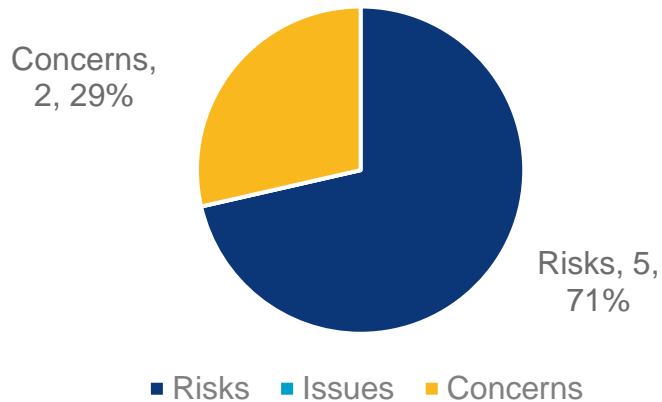
Feb '22	Category	IV&V Summary
<p>M</p> <p>L</p>	Project Management	<p>The SI reported developing approximately 300 user stories in Sprint 6 and 7. While lower than anticipated, the SI indicated they are still on track to complete the remaining 300 user stories in the remaining sprints. However, based on PUC's feedback during review sessions, we are increasingly concerned that the need for additional refinement may impact the schedule or result in a sub-optimal system at go-live. Although the SI removed a resource, the engagement manager will backfill the vacancy.</p> <p>PUC resources continue to be available as needed and lack of availability has not impacted the project schedule. The super users have been more active after Sprint 7 and continue to meet project demands.</p> <p>There were no project deliverables reviewed during this reporting period.</p>
Feb '22	Category	IV&V Summary
<p>L</p>	Software Development	<p>PUC continues to provide feedback during demos, refinement, and validation sessions. However, IV&amp;V and PUC are concerned this feedback is not being solutioned or accurately implemented because the SI does not follow-up with PUC to address the refinement. The SI indicated they will improve addressing refinement requests by demonstrating implemented feedback.</p> <p>The SI identified process improvements during working sessions and refinement meetings. Although there have been instances of PUC pushback to keep things familiar, the Project was able to overcome hesitancy. However, there also are instances where PUC recommended better processes than what was proposed by the SI.</p>



# Executive Summary

IV&V is monitoring seven findings. In total, there are five risks and two preliminary concern. One risk was raised to medium and the other 4 risks are rated low. Three fall into the Project Management category and two are in the Software Development category.

### All Findings by Type





# **IV&V Findings and Recommendations**

# IV&V Findings and Recommendations - Risks

IV&V ID #14	Type: Risk Rating: Low	Status: In progress	Category: Project Management Date Opened: September 30, 2021
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**Title:** Limited PUC resource availability could lead to schedule delays and incomplete system design.

**Observation:** Although the CDMS Project is a high priority at the PUC, resource limitations appear to exist throughout the life cycle of the Project. These constraints were communicated to the System Integrator (SI) early in the project for planning purposes.

**Context:** System development projects require coordination and engagement between the SI and the client in order to accurately document business needs, processes, user stories, business rules, and anything needed to build a system that meets the client's needs.

**Impact:** Schedule delays, increased project cost, implementation of a solution that that does not meet the PUC's needs

## Updates

4/29/2022: PUC resources continue to be available and have met the SI's expectations for resource availability. Details of the user acceptance testing phase have not been fully vetted and it remains unclear whether PUC resource availability will negatively impact the testing schedule.





# IV&V Findings and Recommendations - Risks

IV&V ID #14 (cont.)	Type: Risk Rating: Low	Status: In progress	Category: Project Management Date Opened: September 30, 2021	
Recommendations/Action Items			Period	Status
PUC PM and SI PM develop a plan to address these constraints. Work closely together throughout the project to plan important meetings based on resource availability.			Long Term	In progress
SI develop fully resourced work plan.			Short Term	Not started
PUC and SI review Sprint Plan and ceremonies to identify specific resources to help identify resource risk that can be addressed before sprint cycles begin.			Short Term	In progress
SI employ agile processes and methodologies so that progress can be made regardless of PUC resource availability.			Long Term	In progress



# IV&V Findings and Recommendations - Risks

IV&V ID #15	Type: Risk Rating: Low	Status: In progress	Category: Project Management Date Opened: September 30, 2021
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**Title:** Project deliverables and artifacts that lack sufficient detail could lead to project delays, misunderstandings, inefficient project execution, and rework.

**Observation:** Early SI submissions of project deliverables lacked sufficient detail.

**Context:** Project planning documentation such as the Project Plan, Risk Management Plan, Communication Plan and Change Management Plan, can be effective tools for projects of this size to increase stakeholder understanding of the goals, approach, steps, timelines, roles and responsibilities. Additionally, conceptual designs, requirements traceability matrices, and process maps can also provide important information for successfully developing a system that meets PUC's needs.

**Impact:** Failure to provide sufficient detail in project deliverables can lead to project team confusion, missteps, project delays, misunderstandings, inefficient project execution, and rework.

## Updates

4/29/2022: No deliverables have been due for the past 2 months therefore there are no material updates.



# IV&V Findings and Recommendations - Risks

<b>IV&amp;V ID #15 (cont.)</b>	<b>Type: Risk</b>  <b>Rating: Low</b>	<b>Status: In progress</b>	<b>Category: Project Management</b>  <b>Date Opened: September 30, 2021</b>	
<b>Recommendations/Action Items</b>			<b>Period</b>	<b>Status</b>
Although DEDs were developed for all deliverables, the SI should involve PUC before providing the draft deliverable to obtain feedback and expedite review cycles.			Long term	In progress
The SI should perform additional QA of deliverables prior to submission			Long term	In progress



# IV&V Preliminary Concerns

ID #16	Type: Preliminary Concern	Status: In progress	Category: Project Management
	Rating: Medium		Date Opened: September 30, 2021

**Title:** Adoption of an aggressive schedule can lead to poor system design, PUC stakeholder frustration, and stretch PUC resources beyond their capacity.

**Observation:** The project has an aggressive schedule with little slack given the volume of deliverables and artifacts, the availability of PUC resources, and the perceived cadence of project meetings and workshops.

**Context:** A schedule with flexibility and sufficient slack to accommodate project changes that impact the schedule such as resource availability, activities that take longer than anticipated, or missed dependencies, typically result in a project that is delivered on time. Projects with aggressive schedules tend to rush project activities to meet deadlines.

**Impact:** Rushed project activities can reduce document and system quality. When activities do not seem thorough, customer frustration can result. A rushed schedule can place unnecessary demand on PUC resources, especially if PUC resources are already fully utilized.

## Updates

4/29/2022: The SI reported completing approximately 80% of total user stories and reported delivering 110 user stories in Sprint 7. The SI remains confident they can deliver the remaining 300+ user stories on time. However, PUC and IV&V observed user stories reported as “Development Complete” require further refinement and/or contain defects. It remains unclear if the need for additional refinement could lead to schedule delays. Based on the number of PUC's comments relative to the amount of functionality reviewed, IV&V is increasingly concerned that the project schedule and/or system quality could be at risk. For example, during a Sprint 5 validation meeting, the SI demonstrated 5 user stories to the PUC that resulted in about 13 requested changes across 4 user stories. To mitigate potential schedule delays, the SI mentioned working with PUC to prioritize new refinement cases to help determine which cases may or may not be implemented before go-live. However, if too many items cannot be implemented before go-live, this may impact the final system design, or the project must extend go-live to accommodate all the changes.



# IV&V Findings and Recommendations - Risks

IV&V ID #16 (cont.)	Type: Risk Rating: Low	Status: In progress	Category: Project Management Date Opened: September 30, 2021
Recommendations/Action Items		Period	Status
Provide reports that communicate progress clearly such as a burndown chart and sprint metrics such as planned user stories, completed user stories, cancelled user stories, and new/added user stories so as to clearly demonstrate if the project is on track or not.		Medium term	In progress



# IV&V Findings and Recommendations - Risks

IV&V ID #17	Type: Risk Rating: Low	Status: In progress	Category: Project Management Date Opened: September 30, 2021
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**Title:** Inefficient business analysis activities could lead to rework, schedule delays, SME frustration, and poor system design

**Observation:** PUC and IV&V were concerned that many analysis outputs lacked sufficient quality and comprehensiveness. For example 1) PUC workshop attendees mentioned various workshops and meetings were not very useful, unorganized and unproductive; 2) The workshop cadence seemed slow and did not appear to achieve all intended goals of each workshop session; 3) Although not a contractual requirement, meeting notes from the workshops were not sent to meeting attendees which helps confirm the SI's understanding and shows visibility that the SI understands PUC's needs; 4) Although not explicitly required, PUC requested the SI to review the business documentation provided by a 3rd party prior to conducting the as-is workshops to save time and not start from a blank slate. Despite having access to and reviewing the existing business documentation, PUC observed many questions and time spent on areas that were already documented and PUC was not confident as to how much of the existing documentation was leveraged.

**Context:** Efficient business analysis processes promote effective communications resulting in productive meetings, good project documentation that provides clarity to complex topics, and overall, foster trust.

**Impact:** Inefficient analysis activities can negatively impact the Project. For example, 1) Project delays can occur if meetings do not meet intended goals and require additional clarification; 2) Rework and redesign can happen if accurate information was not solicited because participant expectations were not clear during the meeting; 3) Client buy-in and system acceptance may reduce.

## Updates

4/29/2022: SI twice-weekly meetings with the PUC Technical Lead appear to be improving some business analysis efforts. The SI continues to collect PUC SME feedback from Grooming and System Demo sessions and translating them into actionable development tasks. However, IV&V and PUC remain concerned whether feedback is being translated accurately and/or solutioned with the most effective/efficient designs. To address IV&V and PUC's concerns, the SI intends to demonstrate the implemented feedback to confirm accuracy.



# IV&V Findings and Recommendations - Risks

<b>IV&amp;V ID #17 (cont.)</b>	<b>Type: Risk</b>  <b>Rating: Low</b>	<b>Status: In progress</b>	<b>Category: Project Management</b>  <b>Date Opened: September 30, 2021</b>	
<b>Recommendations/Action Items</b>			<b>Period</b>	<b>Status</b>
Institute continuous process improvement activities to refine the analysis processes and maximize their cadence without sacrificing quality.			Long term	In progress
Request the SI track their cadence/velocity to improve estimation of task durations to assure planned milestone due dates are realistic.			Long term	In progress



# IV&V Findings and Recommendations - Risks

IV&V ID #18	Type: Risk Rating: Low	Status: In progress	Category: Project Management Date Opened: October 28, 2021
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**Title:** Lack of attention to process improvement can lead to a system that simply automates existing processes instead of improving them

**Observation:** The extent to which the Project intends to focus on process improvements remains unclear. Pain points do not seem comprehensively tracked or considered during design sessions or whether all stakeholders are aware of or are actively utilizing the pain points list. While IV&V recognizes that change is difficult, some stakeholders appear to be hesitant to let go of familiar processes during the design sessions. It remains unclear if PUC has assigned the role of change champion to drive organizational process improvements.

**Context:** IT Projects that assign change champions and prioritize process improvement have an increased likelihood of resulting in systems that meet the organization's future business needs and improve system acceptance.

**Impact:** Lack of attention to process improvement can lead to a final product that fails to provide maximum value to users. Tracking pain points can be an effective OCM strategy to promote user adoption and increase user buy-in by providing visibility into how the system can resolve their pain points. Also, identifying and implementing opportunities for process improvement avoids SME frustration and rework.

## Updates

4/29/2022: The SI made identified process improvements during working sessions and refinement meetings. Although there have been instances of PUC pushback to minimize change to existing processes, the Project was able to overcome hesitancy. However, there also are instances where PUC recommended better processes than what was proposed by the SI. The SI indicated more focus is on the larger/more critical items which may cause other areas to be less optimal.





# IV&V Findings and Recommendations - Risks

<b>IV&amp;V ID #18 (cont.)</b>	<b>Type: Risk</b> <b>Rating: Low</b>	<b>Status: In progress</b>	<b>Category: Project Management</b> <b>Date Opened: September 30, 2021</b>	
<b>Recommendations/Action Items</b>			<b>Period</b>	<b>Status</b>
Identify a PUC process improvement resource to drive/coordinate organizational process improvement efforts and assure system related processes are optimized. This resource could attend design sessions and validate designs support process improvement.			Short term	Not started
Work closely with the SI to identify opportunities for process improvement and implement associated features in the system being careful not to overwhelm users with too much change.			Long term	In progress
Formally engage stakeholders in identifying and tracking pain point and out-of-scope requirements so they are not forgotten and can be revisited in future project phases or other organizational initiatives.			Long term	In progress



The background is a solid blue color with several white-outlined squares of various sizes scattered across it. Some of these squares are partially filled with a lighter blue color, creating a layered, geometric effect.

## **IV&V Preliminary Concerns**

*(These are not findings, rather, these are observations based on limited information at the time of reporting and require further discovery, research and clarification.)*

# IV&V Preliminary Concerns

<b>ID #19</b>	<b>Type: Preliminary Concern</b> <b>Rating: n/a</b>	<b>Status: In progress</b>	<b>Category: Project Management</b> <b>Date Opened: November 30, 2021</b>
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**Title: Key PUC project resources performing multiple roles could lead to schedule delays and significant project disruption.**

**Observation:** IV&V has noted that at least two of the PUC project team members perform multiple roles and responsibilities on the project which may impact their ability to be successful if project demands increase.

In addition to serving as PUC's CDMS PM, this position also performs the following roles: Organizational Change Management lead, Process Improvement lead, Business Analyst Co-lead, User Acceptance Test (UAT) Co-lead, and Contract Administrator. In addition to performing ongoing operational responsibilities, the PUC CDMS Technical Lead is the Project IT Sponsor, Data SME, BA Co-Lead, and User Acceptance Test Co-Lead, and is heavily relied on for business analysis.

While these team members have indicated a strong commitment to project success, each has multiple competing priorities. The team members stated their support staff, including the new communications lead, will take on more responsibility to alleviate demands on their time. Also, the team members believe that the overall future workload will lessen.

It remains unclear if PUC staffing levels are appropriate for this project.

**Context:** Typically, Hybrid Agile projects require an increased level of customer engagement through all phases of the project. Overreliance on key resources can not only overtax and thereby reduce the effectiveness of these key individuals but also present a risk of significant project disruption in the event of their departure.

**Impact:** If the PUC PM and Technical SME are unable to transfer some responsibilities to other PUC resources, this could stretch them beyond their capacity which may lead to project delays and a decrease in quality in the project tasks they perform.

## Updates

4/29/2022: PUC plans to onboard a new Project Manager in May 2022. It is uncertain what responsibilities the new PM will take over from the existing PM and whether the transition will impact the schedule. Though the PUC Technical Lead appears to be operating at maximum capacity, there does not appear to be any significant impact to the project.



# IV&V Preliminary Concerns

<b>ID #20</b>	<b>Type: Preliminary Concern</b> <b>Rating: n/a</b>	<b>Status: New</b>	<b>Category: Data Management</b> <b>Date Opened: March 31, 2022</b>
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**Title:** Data cleansing challenges could overwhelm PUC SMEs and could confuse users, reduce user buy-in, and/or lead to schedule delays if the Project went live with some bad data

**Observation:** IV&V is concerned with the poor quality of the legacy system data and whether PUC has the capacity to effectively cleanse their data. Further, if the project aims to meet data conversion milestones, the project may elect to go-live with some bad data to meet their planned go-live date.

**Context:** Typically, any bad data is addressed prior to go live to facilitate user adoption and to increase perceived system quality.

**Impact:** If all important data is not cleaned up prior to go-live, user adoption may be challenged, and user perception of the system may be diminished.

## Updates

4/29/2022: PUC data cleansing efforts appear to be productive thus far and the SI support of these effort appear to be sufficient.





# IV&V Scope and Approach

# IV&V Scope

- In accordance with PCG's contract for the CDMS Project at the PUC, the subject areas that are within the scope of IV&V activities include:
  - Project Management
  - Requirements Management
  - Software Development
  - Development Environment
  - System and Acceptance Testing
  - Operating Environment
  - Data Management
  - Operations Oversight
  - Training
- As the CDMS IV&V project progresses, PCG's activities will focus on areas that represent highest risk to the Hawaii PUC.



# IV&V Approach and Methodology

- What is Independent Verification and Validation (IV&V)?
  - Oversight by an independent third party that assesses the project against industry standards to provide an unbiased view to stakeholders
  - The goal of IV&V is to help the State get the solution they want based on requirements and have it built according to best practices
  - IV&V helps improve design visibility and traceability and identifies (potential) problems early
  - IV&V objectively identifies risks and communicates to project leadership for risk management
- PCG IV&V Methodology
  - Consists of a 4-part process made up of the following areas:
    1. **Discovery** – Discovery consists of reviewing documentation, work products and deliverables, interviewing project team members, and determining applicable standards, best practices and tools
    2. **Research and Analysis** – Research and analysis is conducted in order to form an objective opinion.
    3. **Clarification** – Clarification from project team members is sought to ensure agreement and concurrence of facts between the State, the Vendor, and PCG.
    4. **Delivery of Findings** – Findings, observations, and risk assessments are documented in this monthly report and the accompanying Findings and Recommendations log. These documents are then shared with project leadership on both the State and Vendor side for them to consider and take appropriate action on.
















Note: This report is a point-in-time document with findings accurate as of the last day in the reporting period.






# IV&V Engagement Status



# IV&V Engagement Status

IV&V Engagement Area	Feb	Mar	Apr	Comments
IV&V Budget				The IV&V engagement is deliverables-based and PUC is not at risk of being over budget.
IV&V Schedule				The IV&V engagement aligns with the SI schedule. At this time.
IV&V Deliverables				There are no known risks to upcoming IV&V deliverables.
IV&V Staffing				The IV&V team maintains the proposed team and there are no foreseeable changes.
IV&V Scope				The IV&V project continues to operate within the scope of its engagement.




Engagement Status Legend		
	The engagement area is within acceptable parameters.	
		The engagement area is somewhat outside acceptable parameters.
		
		The engagement area poses a significant risk to the IV&V project quality and requires immediate attention.

# Appendices



# Appendix A – IV&V Criticality Ratings

See definitions of Criticality Ratings below:

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

# Appendix B – IV&V Inputs

Meetings attended during the reporting period:	Artifacts reviewed during the reporting period:
Deliverable Walkthroughs	Organizational Change Management Plan
Standing: Bi-weekly risk meetings	Sprints 1-7 Backlog Report
Standing: Weekly IVV check-in meetings	
Standing: Weekly project status meetings	
Standing: Daily standups as needed	
Standing: Twice Weekly Recurring Working Sessions	
Super User Training	
Sprint 7 Grooming Sessions	
Sprint 7 Demo	



# Appendix C – Upcoming IV&V Activities

Anticipated meetings to attend next period	Anticipated artifacts to review next period
Deliverable Walkthroughs	Sprints 8-10 RTM
Standing: Bi-weekly risk meetings	
Standing: Weekly IVV check-in meetings	
Standing: Weekly project status meetings	
Standing: Daily standups as needed	
Standing: Twice Weekly Recurring Working Sessions	
Super User Training	
Sprint 8 Grooming Sessions	
Sprint 8 Demo	



# Appendix D – Recommendation Periods

Period	Definition
<b>Short Term</b>	These are recommendations that should be completed within the month and/or require less than a month to complete
<b>Medium Term</b>	These are recommendations that should be completed within 2-6 months and/or require 2-6 months to complete
<b>Long Term</b>	These are recommendations that should be completed within 6 months to a year and/or require > 6 months to complete.





**Solutions that Matter**