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April 18, 2022

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

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

Dear President Kouchi, Speaker Saiki, and Members of the Legislature:

Pursuant to HRS section 27-43.6, which requires the Chief Information Officer to submit applicable independent verification and validation (IV&V) reports to the Legislature within ten days of receiving the report, please find attached the IV&V report the Office of Enterprise Technology Services received for the Hawaii Public Utilities Commission's 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 (Apr 18, 2022 14:23 HST)

DOUGLAS MURDOCK
Chief Information Officer
State of Hawai'i

Attachment (1)

Content and Document Management System (CDMS) Project

Hawaii Public Utilities Commission (PUC)

IV&V Monthly Status Report

For Reporting Period: **February 2022**

Draft Submitted: 3/07/2022

Final Submitted: 4/11/2022

PUBLIC CONSULTING GROUP

Solutions that Matter

Overview

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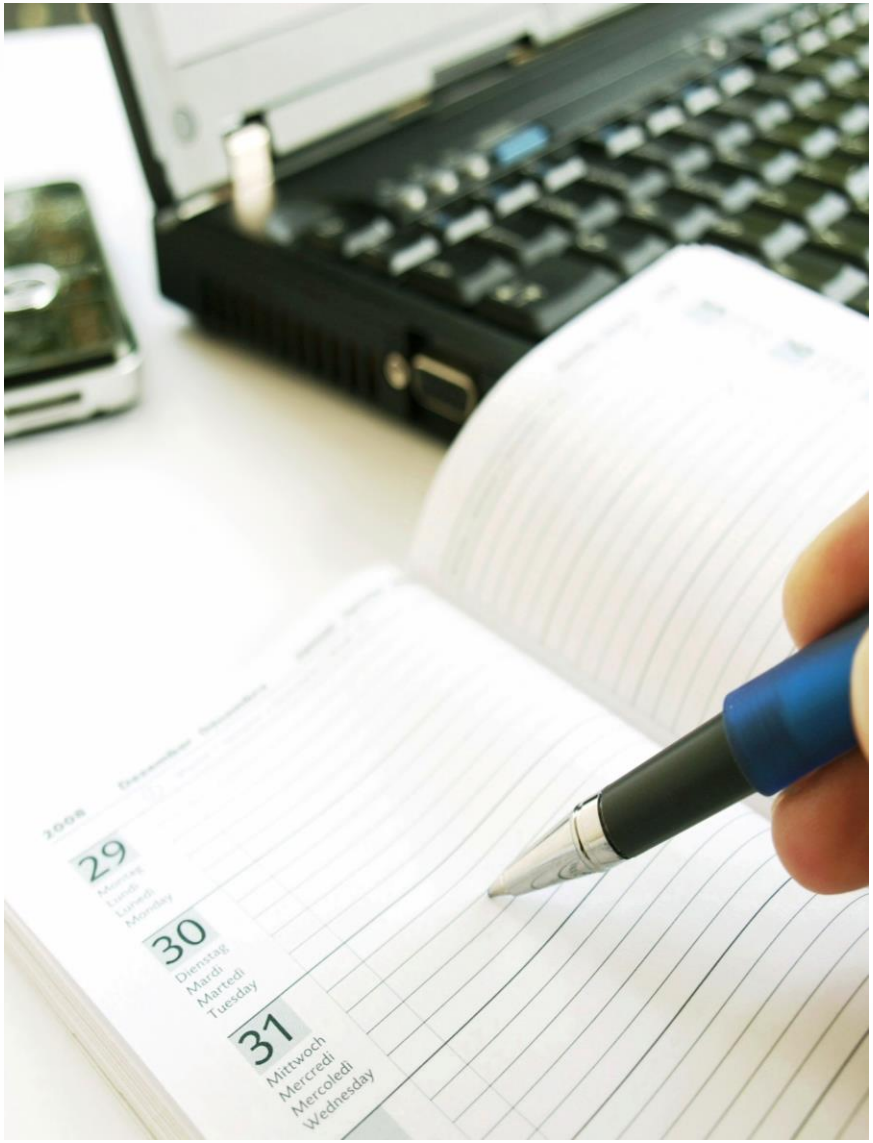
- IV&V Findings and Recommendations
- IV&V Preliminary Concerns
- IV&V Scope and Approach
- IV&V Engagement Status
- Appendices
  - A – IV&V Criticality Ratings
  - B – IV&V Inputs
  - C – Upcoming IV&V Activities



Executive Summary

The Project completed Sprint 5 and demonstrated key features in the CDMS and the public portal during this reporting period. The most significant concerns at this time relate to the project schedule and user/customer satisfaction.

For each sprint, fewer user stories have been delivered than what was planned, although variances were attributed to canceled or duplicate user stories and to the System Integrator's (SI's) practice of purposely overestimating user stories to boost productivity. While Sprint 6 began on schedule, questions remain over the volume of user stories in the remaining sprints, which may impact the project timeline in the long run. The SI will work with PUC and IV&V to increase transparency by providing more meaningful progress reports.

Regarding user/customer satisfaction, the SI's approach of conducting limited upfront business analysis has led to user perceptions that the new system is replicating the existing system and is not improving PUC's current business processes. The SI plans to conduct additional business analysis in future sprints to generate process improvements.

Concerns over deliverable quality, PUC availability, and PUC overallocation have decreased. Based on the quality of the SI's Data Conversion and Migration deliverable, improved pre-submission processes resulted in a better review experience. PUC resources attend meetings as needed, facilitated by the SI's practice of distributing agendas further in advance. Although IVV remains concerned with PUC resources being over-allocated, their existing workload did not appear to negatively impact the project during this reporting period.

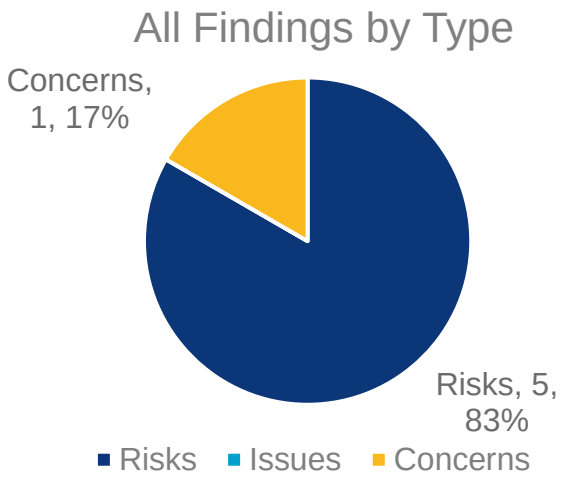
Executive Summary

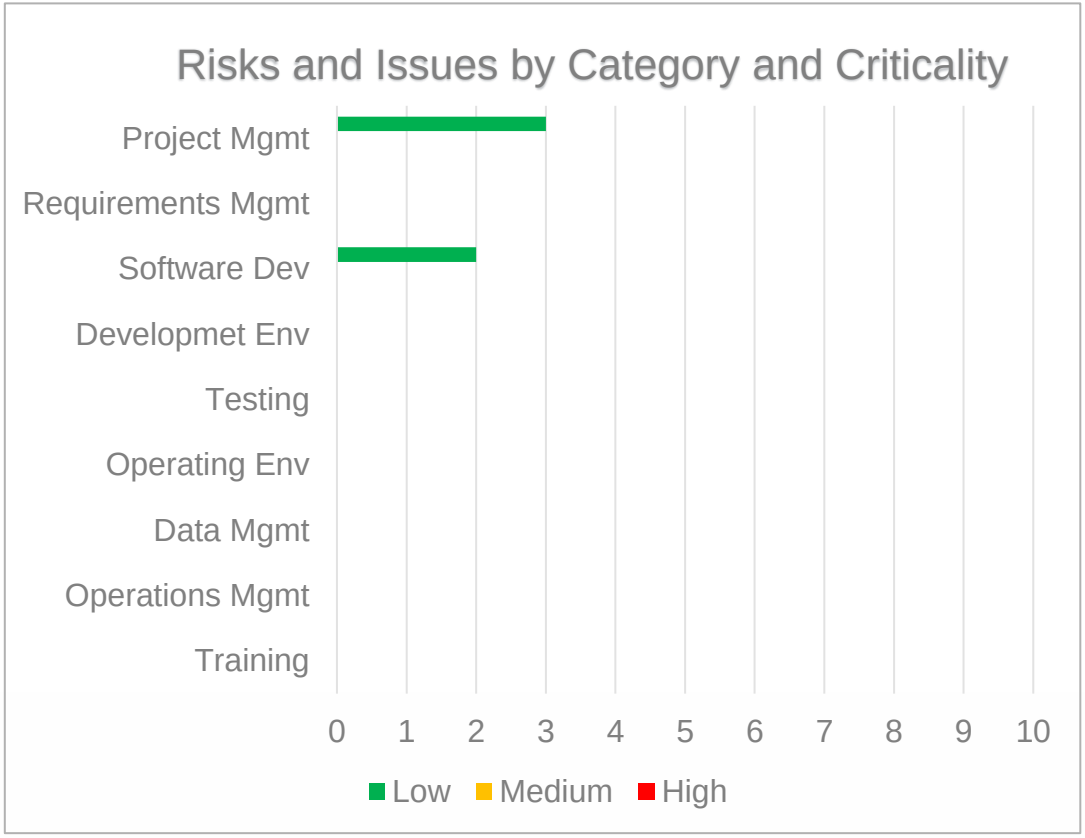
Feb '22	Category	IV&V Summary
L	Project Management	Early metrics indicate the SI's development of user stories is falling behind what was originally planned for each sprint. However, the SI is confident in its progress and plans to work with PUC and IVV to develop velocity reports to measure progress in a more meaningful way. PUC resources continue to be available as needed. The SI's practice of giving resources more advance notice by distributing meeting agendas earlier aided PUC's resource planning. The Data Migration and Conversion Plan required fewer review cycles for the PUC to finalize and accept the document.

Feb '22	Category	IV&V Summary
L	Software Development	The SI stated they were focused on demonstrating completed back-end functionality during recent demonstrations and meant to elicit feedback about user interface and screen level functionality. The recent demonstrations were not meant to demonstrate final system functionality, and feedback about the user interface and screen level functionality will be implemented and demonstrated in future sprints. To increase user/customer satisfaction and perceived system value, the SI acknowledged the need to be more deliberate about documenting and demonstrating PUC pain points and areas of improvement in future analysis activities and demonstrations.

Executive Summary

IV&V is monitoring six findings. There are five risks and one preliminary concern. The five risks are rated low. Three fall into the Project Management category and two are in the Software Management category. Finding #17 was recategorized in the Software Development category from the Requirements Management category.





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

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

2/28/2022: PUC stakeholders and SMEs continue to be available for meetings. The SI began sending agendas further in advance of meetings to facilitate PUC resource planning and availability.

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

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

2/28/2022: The 3.4 Data Conversion and Migration Plan was approved. PUC comments and concerns were addressed. Overall, the deliverable provided the detail and quality that reduced the number of review cycles between PUC and the SI.

IV&V Findings and Recommendations - Risks

IV&V ID #15 (cont.)	Type: Risk Rating: Low	Status: In progress	Category: Project Management Date Opened: September 30, 2021

Recommendations/Action Items	Period	Status
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 Rating: Low	Status: In progress	Category: Project Management 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

2/28/2022: The Project is delivering fewer user stories than planned each sprint. For example, the SI planned to deliver approximately 320 total “design” user stories in Sprint 3/4 and Sprint 5 but only delivered approximately160 user stories. The SI explained the planned user stories were overestimated on purpose to improve productivity. Additionally, user stories were removed from the Sprints because of duplicates or they were cancelled. PUC and IVV remain concerned that future sprints will contain more user stories than anticipated resulting in schedule delays or reduced quality to meet existing deadlines. However, the SI remains confident they are on track. To help communicate progress and increase transparency, the SI will revisit reporting needs with PUC and IVV.

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	Not started

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

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

2/28/2022: IV&V observed that system demonstrations generated user feedback about user interface and screen level functionality that could have been obtained during backlog grooming sessions and design sessions with PUC staff prior to the demos. The SI acknowledged the need to improve eliciting feedback specifically from the PUC Technical SME prior to the demos. The twice-weekly Technical SME meetings are intended to elicit this feedback prior to the demos. The SI indicated a future sprint focuses on UI and screen-level functionality where general PUC staff feedback can be addressed. However, IV&V remains concerned that minimal initial analysis could lead to a backlog that will require the SI to spend additional time analyzing PUC requirements that could lead to schedule delays.

IV&V Findings and Recommendations - Risks

IV&V ID #17 (cont.)	Type: Risk Rating: Low	Status: In progress	Category: Project Management Date Opened: September 30, 2021

Recommendations/Action Items	Period	Status
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

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

2/28/2022: The SI assured the PUC that efforts are being made to address process improvements and that demonstrated designs will be refined to include improvements to processes and legacy user interfaces. However, based on recent system demos, it remains unclear what these improvements are. IV&V remains concerned that process improvements could be overlooked to avoid any schedule delays or result in a system that does not fully meet PUC's needs. The SI indicated they will be more deliberate about defining, identifying, and demonstrating process improvement areas and solutions to pain points when conducting business analysis activities.

IV&V Findings and Recommendations - Risks

IV&V ID #18 (cont.)	Type: Risk Rating: Low	Status: In progress	Category: Project Management Date Opened: September 30, 2021

Recommendations/Action Items	Period	Status
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	Not started
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

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

ID #19	Type: Preliminary Concern Rating: n/a	Status: In progress	Category: Project Management Date Opened: November 30, 2021

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

2/28/2022: Key PUC core team members indicated their workload is manageable and has improved. The SI also indicated PUC core team members are responsive and not causing delays.

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	Dec	Jan	Feb	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:
Standing: Bi-weekly risk meetings	Sprints 1-5 Backlog Report
Standing: Weekly IVV check-in meetings	
Standing: Weekly project status meetings	
Standing: Daily standups as needed	
Standing: Project Management Meetings	
Sprint 5 Demo	
Sprint6 Backlog Refinement Meetings	
Data Conversion Meetings	
Working Sessions	

Appendix C – Upcoming IV&V Activities

Anticipated meetings to attend next period	Anticipated artifacts to review next period
Deliverable Walkthroughs	Organizational Change Management Plan
Standing: Bi-weekly risk meetings	Sprints 1-6 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 6 Grooming Sessions	
Sprint 6 Demo	

Appendix D – Recommendation Periods

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

Solutions that Matter