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December 3, 2021

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

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

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

Pursuant to HRS section 27-43.6, which requires the Chief Information Officer to submit applicable independent verification and validation (IV&V) reports to the Legislature within ten days of receiving the report, please find attached the 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 (Dec 9, 2021 10:26 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: **Aug 2021**

Draft Submitted: 9/22/2021

Final Submitted: 9/27/2021

PUBLIC CONSULTING GROUP

Solutions that Matter

Overview

- Executive Summary

- IV&V Scope and Approach

- IV&V Findings and Recommendations

- IV&V Preliminary Concerns

- IV&V Engagement Status

- Appendices
    - A – IV&V Criticality Ratings
    - B – IV&V Inputs
    - C – Upcoming IV&V Activities
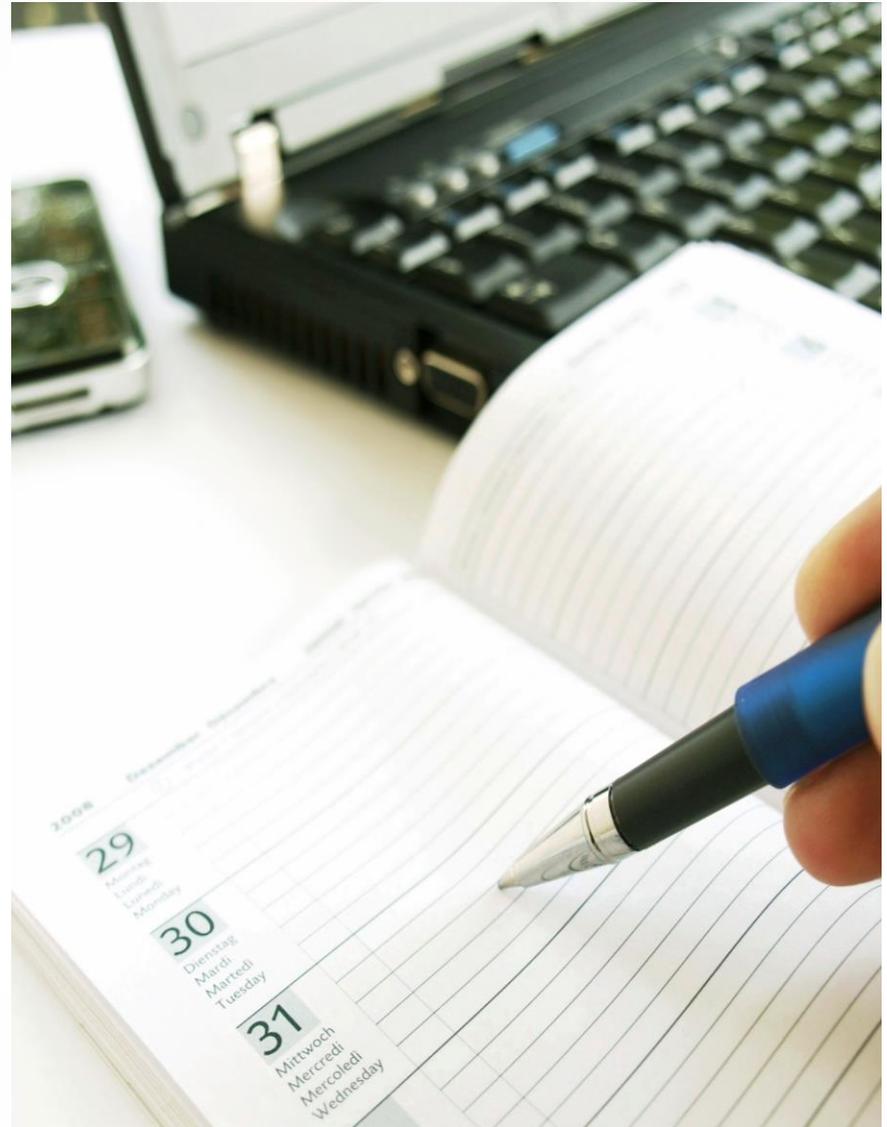
Executive Summary

PCG focused on attending and observing the requirements and business process workshops during this reporting period (August 2021). It was still difficult to assess progress in completing final requirements and future-state process maps but the system integrator informed PUC that they no longer need to conduct large workshops and will rely on submitting questions and conducting interviews in September 2021 to complete the task. Overall, one risk was closed and one new risk was opened this month in the Project Management category.

IVV also is monitoring 6 preliminary concerns. One new preliminary concern is that the Gartner efforts conducted prior to the CDMS project may not be fully leveraged.

Aug '21	Category	IV&V Summary
L	Project Management	*The 3.2 Conceptual Design deliverable was to be completed by the end of September 2021 to coincide with the end of the analysis/design phase. It is now going to be completed after the development sprint. The time and effort required to complete the 3.2 Conceptual Design will now be spread across the development sprints during the 4 planned 2-hour backlog refinement meetings in each sprint. If these refinement meetings do not provide sufficient time to elicit the information needed from PUC staff, the design may not meet the needs of PUC and/or cause schedule delays.*
M	Requirements Management	*There is one risk and one observation regarding requirements management that are still open and interrelated: 1) Notes for the workshop meetings are not provided to PUC immediately after the workshop. (risk), and 2) Two months for the Analysis/Design phase appears aggressive given the number of required artifacts and deliverables. (observation). These items made it difficult to assess progress of the analysis phase and did not allow PUC staff to confirm the accuracy and completeness of what was captured during the workshops.* *The SI informed PUC that they no longer need large workshops and will complete the phase conducting interviews and posing specific questions. While this is an acceptable process, PUC should carve out sufficient time for a thorough review of requirements and process diagrams in the 3.1 Scope Deliverable to ensure its needs from a comprehensive standpoint will be met.*

Executive Summary (cont'd)

Open IV&V Findings by Category and Priority
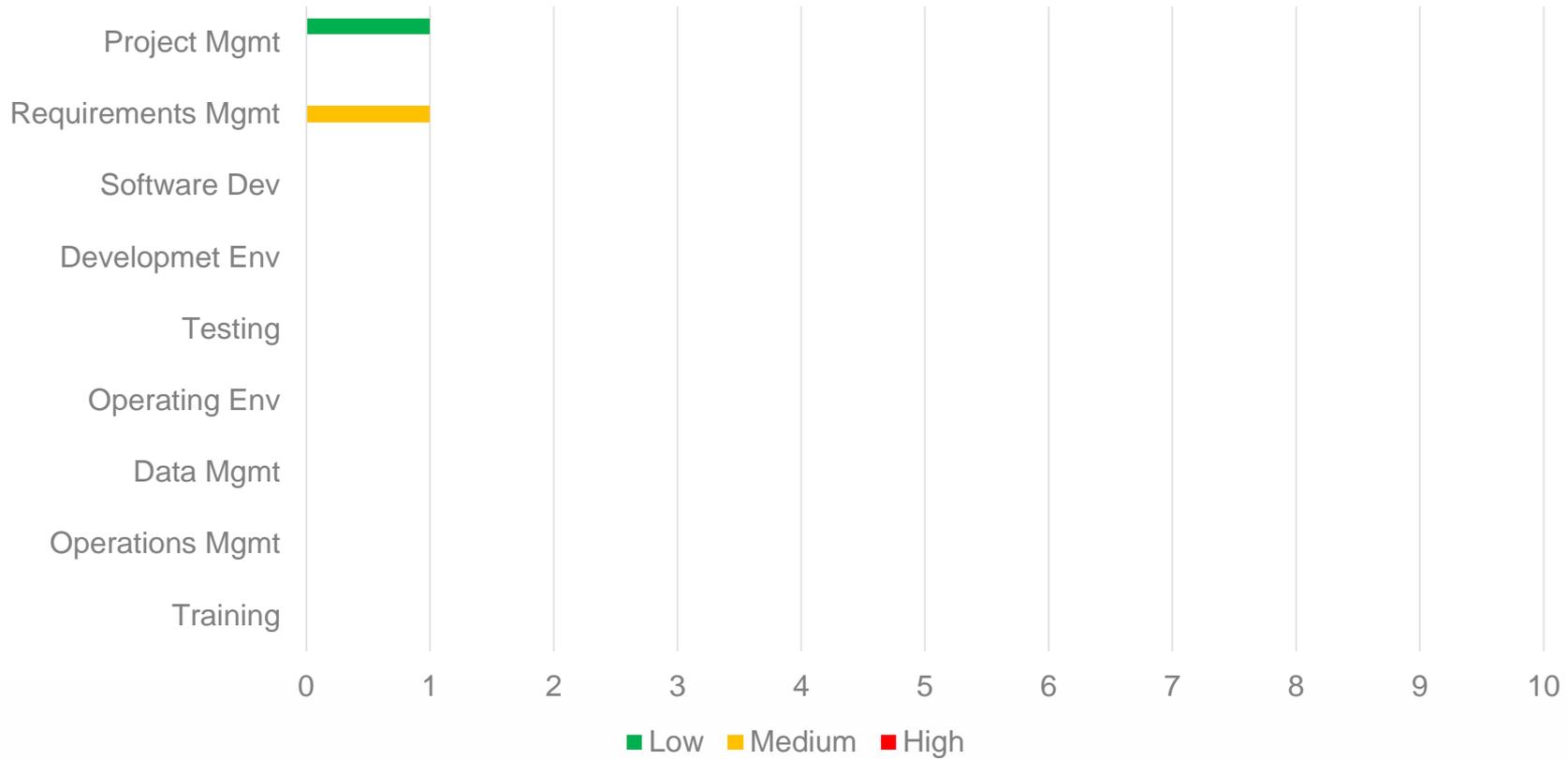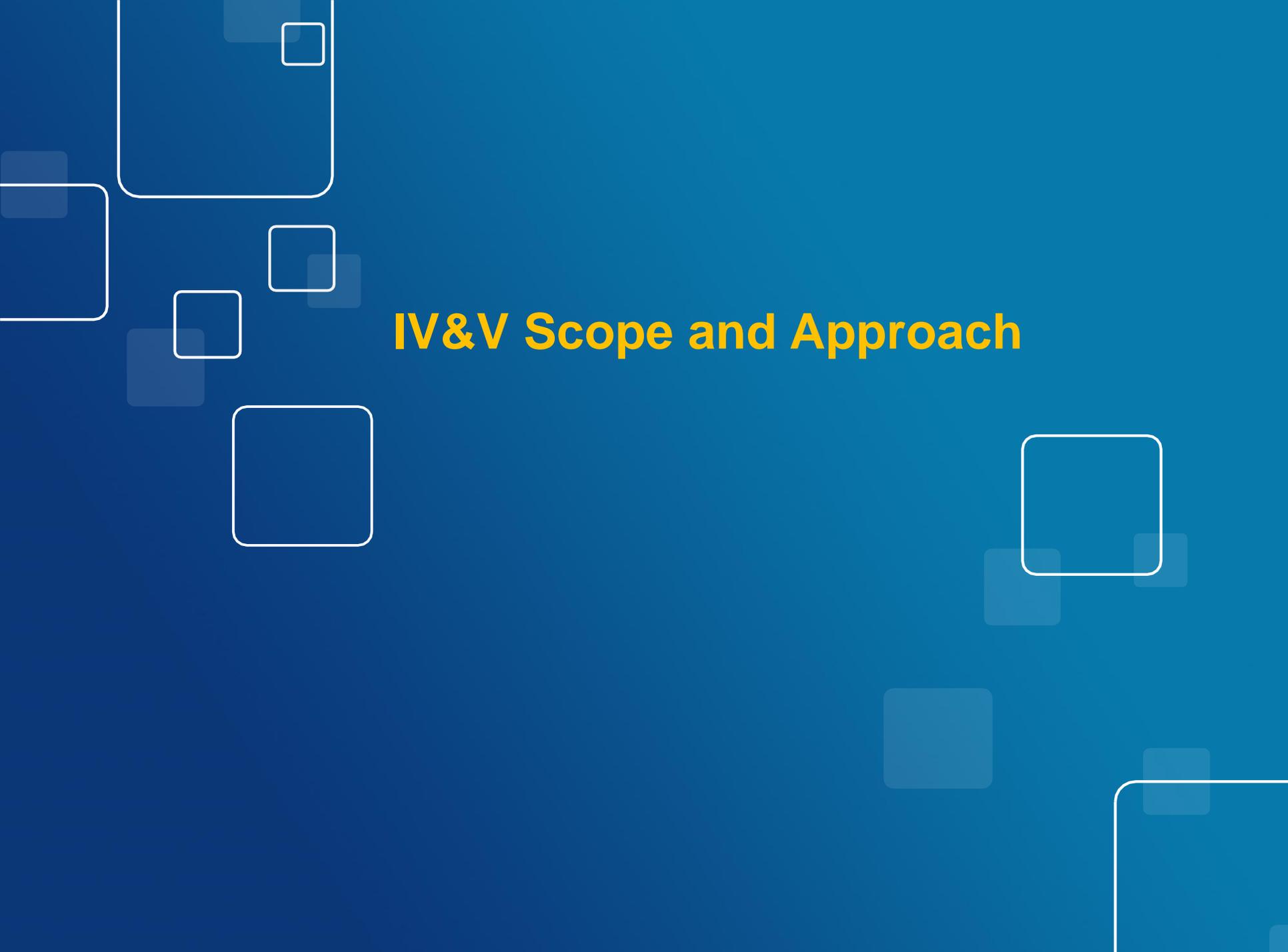
IV&V Scope and Approach

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.
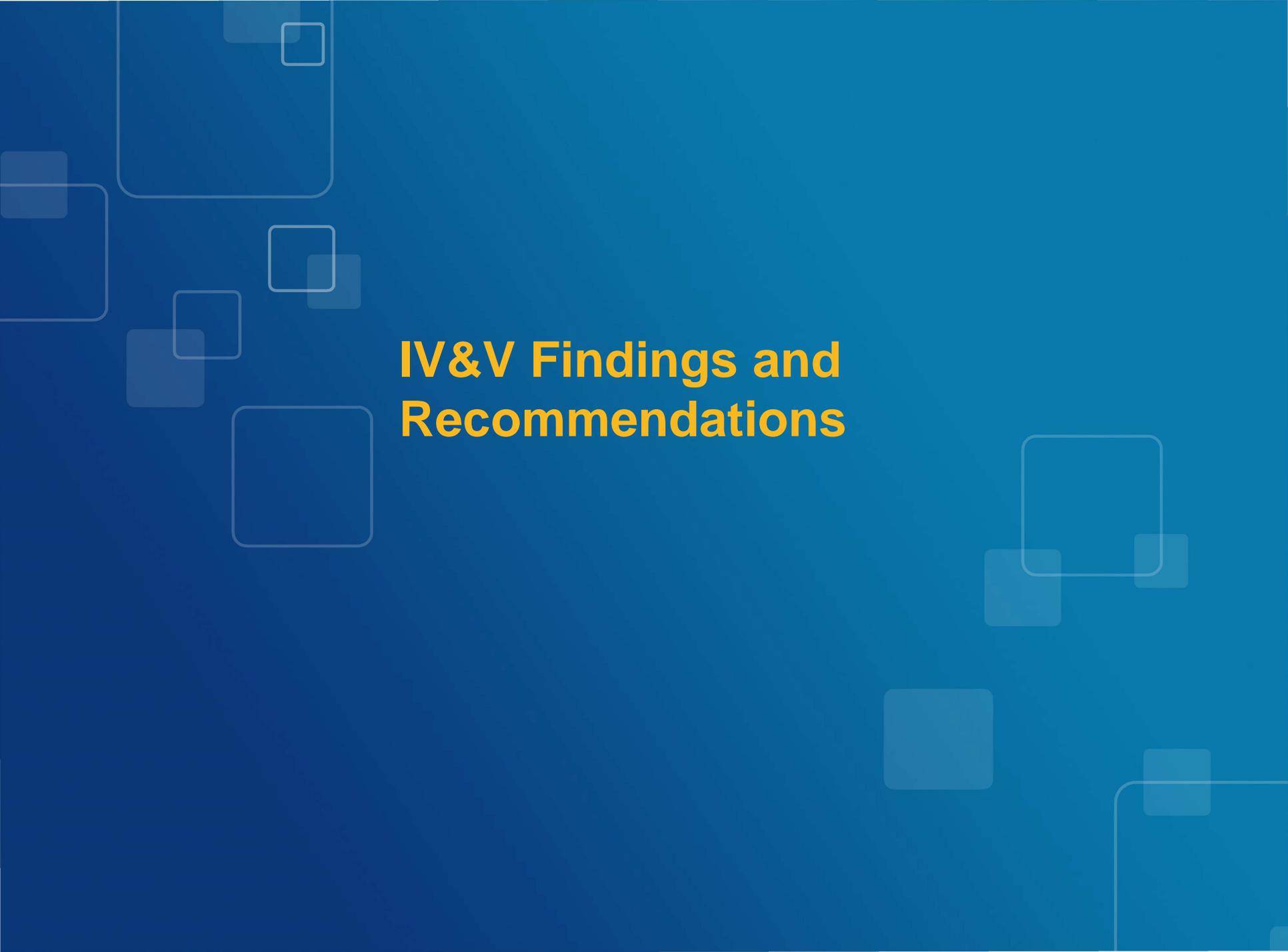
IV&V Findings and Recommendations

IV&V Findings and Recommendations - Positive

#	Positive Findings
n/a	*No positive findings were identified during this reporting period*

IV&V Findings and Recommendations - Risks

IV&V ID # 12	Type: Risk	Status: New	Category: Requirements Management
	Rating: Low		Date Opened: August 2021

Title: **The 3.2 Conceptual Design deliverable will not be completed during the design phase as originally scheduled.**

Statement: The 3.2 Conceptual Design deliverable was to be completed by the end of September 2021 to coincide with the end of the analysis/design phase. It is now going to be completed after the development sprints. The time and effort required to complete the 3.2 Conceptual Design will now be spread across the development sprints during the 4 planned 2-hour backlog refinement meetings in each sprint. If these refinement meetings do not provide sufficient time to elicit the information needed from PUC staff, the design may not meet the needs of PUC and/or cause schedule delays.

Supporting Analysis: The original schedule showed 3.2 Conceptual Design as being delivered after the analysis/design phase. IV&V inquired about whether or not the content of that deliverable is typically developed this early and the SI confirmed it was not. Therefore, the time/effort during the analysis phase that PUC resources expected would result in a completed deliverable will now be required during the development phase.

Updates

- (n/a – new finding)

Recommendations/Action Items	Period	Status
(Mitigation) Review sprint plan and ceremonies to identify any risk that can be addressed before sprint cycles begin	Short Term	New
(Mitigation) Monitor sprint velocity and burndown rates closely during sprint cycles to identify potential risks and issues with project progress	Long Term	New

IV&V Findings and Recommendations - Risks

IV&V ID # 9	Type: Risk Rating: Medium	Status: Open	Category: Requirements Management Date Opened: July 2021

Title: **Requirements Workshop notes are sent at the end of the two weeks of workshops, and not sooner**

Statement: Best practices suggest distributing meeting notes within a day or two of the meeting to obtain feedback from attendees. By waiting two weeks the attendees' ability to provide accurate feedback may decrease, resulting in possibly inaccurate business and technical requirements.

Supporting Analysis: The system integrator was not providing notes after the workshops. After an initial inquiry, it was confirmed notes were not going to be provided for each workshop session.

Updates

- August 2021:The SI did not provide a summary of notes after the two weeks of initial workshops as expected. However, the outcomes of all the workshops will be documented in the deliverables, mainly 3.1 Requirements Traceability and Project Scope which will contain all requirements and process flows During the workshops, the SI has been reviewing "parking lot" items to make sure outstanding items documented during the workshops are confirmed.

Recommendations/Action Items	Period	Status
• (Mitigation) Provide PUC sufficient time to review artifacts and the deliverables that result from all the workshops and meetings that occurred during the analysis/design phase.	Short Term	New
• (Mitigation) Compile/distribute notes in an organized manner to enable PUC staff to review effectively and efficiently as staff availability is limited.	Short Term	Not applicable

IV&V Findings and Recommendations - Risks

IV&V ID # 1	Type: Risk	Status: Closed	Category: Project Management
	Rating: Low		Date Opened: July 2021

Title: **Key project resources not originally identified**

Statement: A critical role identified in the System Integrator's (SI's) proposal is a Business Lead/Subject Matter Expert (SME). This role serves as the first point of escalation for business issues and risks, and business-related questions. Without this role questions may go unanswered longer than necessary causing schedule delays and may then result in a system that do not fully meet PUC's needs. PUC recently identified two resources to fill this role who have not been fully integrated into the project team. IV&V will monitor the integration of these positions in the coming reporting period.

Supporting Analysis: The SI proposed specific roles within their RFP response that identified to be critical and key roles to the success of the project. The business sponsor role was not filled at the beginning of the project and was acknowledged by PUC and Pacific Point.

Updates

- August 2021:The business sponsors have been involved in status meetings and are vocal during workshops providing necessary input and feedback.

Recommendations/Action Items	Period	Status
• (Remediate) PUC and Pacific Point should provide the proper onboarding and ensure the Business Leads are current, clear on their expectations, and involved in the appropriate meetings.	Short Term	Complete

IV&V Findings and Recommendations - Issues

IV&V ID # n/a	Type: n/a	Status: n/a	Category: n/a
	Rating: n/a		Date Opened: n/a

Title: No Issues were identified this reporting period

Statement: n/a

Supporting Analysis:

Updates
• n/a

Recommendations/Action Items	Period	Status
• n/a	n/a	n/a
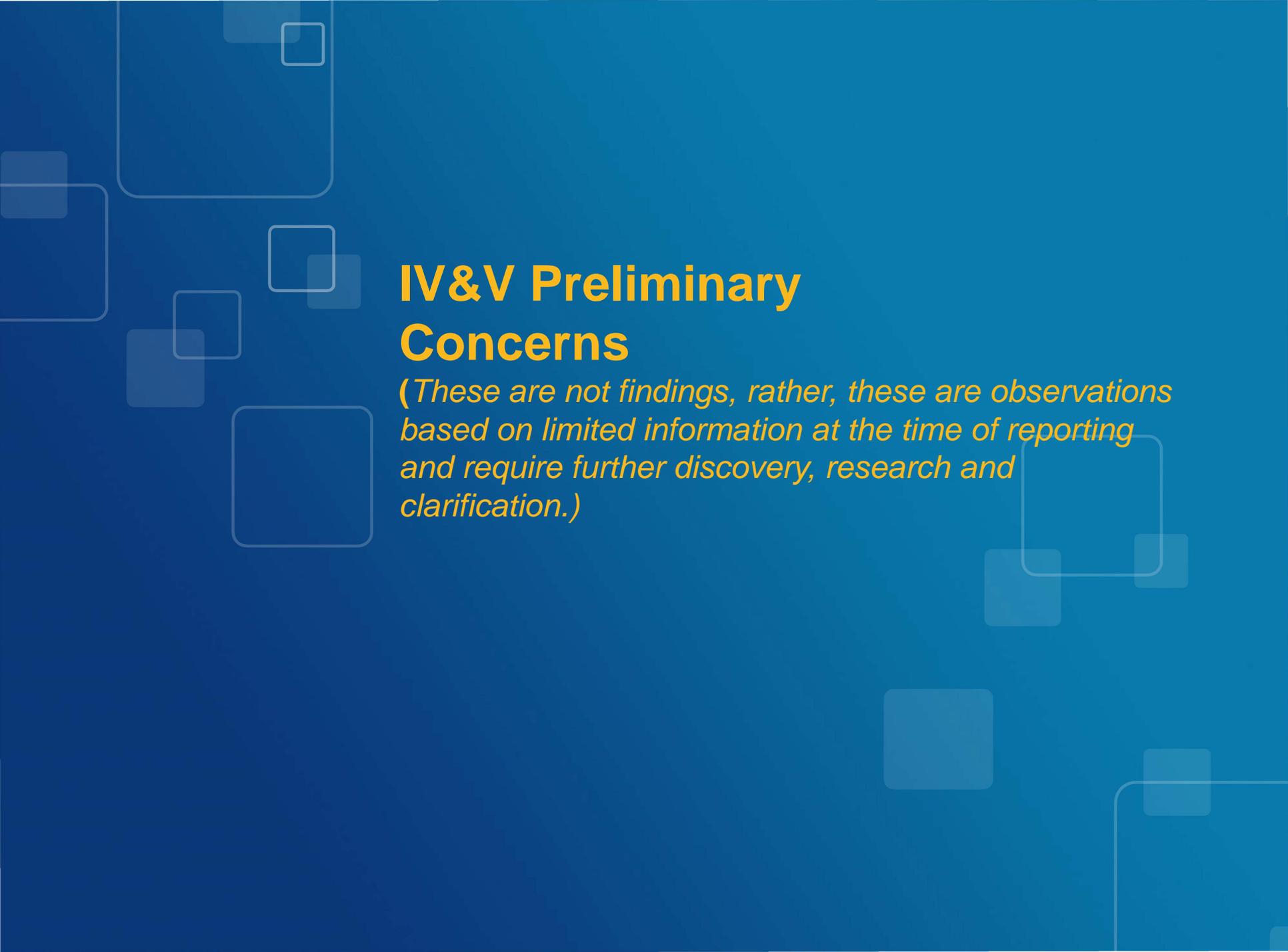
IV&V Preliminary Concerns

(*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

# 13	Type: Preliminary Concern Rating: n/a	Status: New	Category: Requirements Management Date Opened: Aug 2021

Title: The Gartner effort and deliverables that occurred prior to the CDMS project may not be fully leveraged.

Statement: PUC conducted in-depth reviews with Gartner prior to the CDMS project starting. During that effort, Gartner elicited a wide array of PUC requirements, pain points, future state maps, and overall needs. Given there is no specific activity to leverage those materials, it is possible that the new system may miss previously identified PUC needs resulting in a system that does not meet all of PUC needs.

Updates

- n/a – new preliminary concern

IV&V Preliminary Concerns

# 3	Type: Preliminary Concern Rating: n/a	Status: Open	Category: Test Management Date Opened: July 2021

Title: Limited involvement of knowledgeable PUC SMEs during development sprints

Statement: The schedule shows UAT occurring after all the development sprints with demos occurring iteratively at the end of each sprint. If the demos are not very robust, the risk here is that PUC resources who know what the system should do may not be able to provide early feedback resulting in rework and/or a system that does not fully meet the needs of PUC. Making system changes later in the project is less cost effective, and less efficient than making them earlier in the project.

Updates

- August 2021: The PUC Technical SME will have access to the test environment during the sprint cycles but this is not formalized and still being defined. Also, although PUC staff will be involved during backlog grooming sessions, the sprint demos appear to be only an hour for PUC staff to review what was developed. Involvement still seems minimal from a group-perspective and IVV will continue to research and get clarification from the project team.

IV&V Preliminary Concerns

# 4	Type: Preliminary Concern	Status: Open	Category: Project Management
	Rating: n/a		Date Opened: July 2021

Title: The draft Integrated Change Management Plan has limited information

Statement: Integrated change management is "the process of reviewing all change requests; approving changes and managing changes to deliverables, project documents, and the project management plan; and communicating the decisions." IV&V was unable to assess the Plan's completeness because the draft lacked details such as: An end-to-end process for approving or denying change requests; criteria by which a change will be examined, including impact analysis on schedule, scope, budget, quality and other factors pertinent to the success of the project and solution; stakeholder communication/decision making information (who makes the decisions and how are decisions communicated); information about the change control board or governance; and how are changes tracked.

Updates

- August 2021: An updated Integrated Change Management Plan was developed. IVV will review and conduct interviews for clarification as needed.

IV&V Preliminary Concerns

| # 6 | Type: Preliminary Concern

Rating: n/a | Status: Open | Category: Project Management

Date Opened: July 2021 |
|---|---|---|---|

Title: Two months to complete the analysis/design phase seems very aggressive

Statement: After reviewing the number of required deliverables **and** observing workshop meetings during the week of 7/26/2021, two months seem very aggressive. If the two months is underestimated, coupled with the availability of PUC resources, this may result in extending the analysis phase, thereby delaying development, or deliverables that do not fully meet the needs of PUC which could be rejected, also causing schedule delays.

Updates

- August 2021: The 3.2 Conceptual Design is no longer going to be completed by the end of the analysis/design phase therefore the total amount of work to be completed is less. Regarding the as-is and future-state processes and requirements, the SI has stated they are on track and do not need to engage PUC in large format meetings to complete the analysis phase.

IV&V Preliminary Concerns

# 7	Type: Preliminary Concern Rating: n/a	Status: Open	Category: Project Management Date Opened: July 2021

Title: The Risk Management Plan has limited information

Statement: The submitted draft of the Risk Management Plan does not answer questions such as: What are the tools and processes for impact analysis? How will prioritization occur? How will risks be communicated outside of the regular Thursday meetings? At what point will escalation occur?

Updates

- August 2021: An updated Risk Management Plan was developed. IVV will review and conduct interviews for clarification as needed.

IV&V Preliminary Concerns

# 2	Type: Preliminary Concern Rating: n/a	Status: Closed	Category: Requirements Management Date Opened: July 2021

Title: A formal Requirements Management Plan was not in the scope of the project deliverables

Statement: Typically, a Requirements Management Plan is used to facilitate assessing the lifecycle processes that support identification, documentation, analysis, traceability, prioritization, communication and control of project requirements. Requirements traceability is a tool to track requirements to business needs and ensure that the solution will meet those business needs. Although IV&V will use other project artifacts and pose questions to the SI to help assess requirements management, a solid requirements management process is often key to meeting client expectations.

Updates

- August 2021: The SI provided a walkthrough of their approach to requirements management and traceability. In addition, the traceability template will be part of the 3.1 Scope deliverable. While some uncertainties still exist about details during the development phase, PUC is currently satisfied with the overall requirements approach that was presented.

IV&V Engagement Status

IV&V Engagement Status

IV&V Engagement Area	July	Aug	Sept	Comments
IV&V Budget	🟢	🟢		
IV&V Schedule	🟢	🟢		
IV&V Deliverables	🟢	🟢		
IV&V Staffing	🟢	🟢		
IV&V Scope	🟢	🟢		

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:
8/2 - AFR/Utility Fee / Citations Workshops	PM 1.0 PMP – Draft (preliminary)
8/3 – E-filing / Public Access Workshops	PM 1.2 Deliverable Expectation Document Deliverable (preliminary)
8/5 – Future State Docket Workshops	2.0 DED – Stakeholder Outreach and Communication Plan (preliminary)
8/6 – Future State Docket Workshops	3.1 DED – Requirements Traceability Matrix & Project Scope Acceptance (preliminary)
8/9 – Case & Document Mgmt Requirements	3.2 DED – Conceptual Architecture & Solution Design Documentation (preliminary)
8/16 – Initial Assessment Discussion w/ PUC	3.4 DED – Solution Implementation (preliminary)
8/17 – Workshop Wrap up	3.4 DED – Conversion & Migration (preliminary)
8/18 – Comms Plan Review	4.7 DED – Cutover Plan (preliminary)
8/19 – PP DED Reviews and IVV Questions Review	4.8 DED – M&O Plan (preliminary)
8/24 – Future State Workshops – Filing Submissions	5.1 DED – Test Plan & Schedule (preliminary)
8/25 – Intake and Case Initiation Workshops	6.1 DED – Training Plan (preliminary)
8/26 – Future State Rate Case	6.2 DED – Training Curriculum & Materials (preliminary)
8/31 – 3.1 DED Review	7.1 DED – As Built Documentation (preliminary)
Standing: Bi-weekly risk meetings	7.4 DED – Project Close Out (preliminary)
Standing: Weekly IVV check-in meetings	
Standing: Weekly project status meetings	
Standing: Daily standups as needed	

Appendix C – Upcoming IV&V Activities

Anticipated meetings to attend next period	Anticipated artifacts to review next period
Deliverable Walkthroughs	PM 1.0 PMP – Draft
Standing: Bi-weekly risk meetings	PM 1.2 Deliverable Expectation Document Deliverable
Standing: Weekly IVV check-in meetings	2.0 DED – Stakeholder Outreach and Communication Plan
Standing: Weekly project status meetings	3.1 DED – Requirements Traceability Matrix & Project Scope Acceptance
Standing: Daily standups as needed	3.2 DED – Conceptual Architecture & Solution Design Documentation
	3.4 DED – Solution Implementation
	3.4 DED – Conversion & Migration
	4.7 DED – Cutover Plan
	4.8 DED – M&O Plan
	5.1 DED – Test Plan & Schedule
	6.1 DED – Training Plan
	6.2 DED – Training Curriculum & Materials
	7.1 DED – As Built Documentation
	7.4 DED – Project Close Out
	All other remaining DEDs

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.

Public Consulting Group

Solutions that Matter