



CalHEERS Project Independent Verification and Validation (IV&V)

AB1296 Stakeholder Meeting IV&V Update
January 13th, 2016

Prepared by:



Independent Verification & Validation Overview



- IV&V purpose
 - Assess the development and execution efforts for change requests and system modifications. Recommend improvements as necessary.
 - Monitor and evaluate CalHEERS operations and maintenance activities
 - At a high level, the objective of IV&V is to improve software quality. To help improve software quality, IV&V focuses on analyzing processes and artifacts/products resulting from these processes.
- Focus Areas for IV&V Reviews and Reporting:
 - Cyclical Review
 - Architecture
 - Configuration Management
 - Software Quality
 - Test Review
 - Design Quality
 - Development Approach
 - Project Management
 - Periodic Endeavors
 - Deliverable Review
 - Guidance
 - Reporting
 - Research
 - Special Assessments

IV&V Focus Area Definitions



Architecture

- System architecture approach conforms to established criteria including contract requirements in the following areas:
 - Application architecture
 - Technical architecture
 - Data architecture

Configuration Management

- Code configuration control is managed appropriately including adherence to requirements and accessibility by authorized personnel

Software Quality

- Coding standards and guidelines are adequate and appropriate for the application size, complexity, and maintenance needs
- Coding standards and guidelines are followed as evidenced by code passed from the Build phase
- The existing code base is appropriately portable and maintainable
- Software metrics are utilized appropriately for monitoring code quality
- Software components are compliant with requirements

Test Review

- Practices related to Unit Test, System Test, Integration Test, and User Acceptance Test demonstrate the following:
 - Test scripts are followed accurately
 - Test results are recorded accurately
 - Test results are reported accurately
- Test coverage is complete and traceable to requirement

Design Quality

- System design and development conforms to established and accepted criteria including contract requirements

Development Approach

- All major development processes are defined
- Process definitions and standards are complete, clear, up-to-date, and consistent in format
- Processes and standards are compatible with each other and with the system development methodology
- The defined and approved processes and standards are followed in development

Project Management

- Project management processes are documented and available to staff
- Management processes are complete, clear, up-to-date, and consistent in format
- Management processes are followed consistently
- Project management is effective at meeting established goals

Prior IV&V Findings referenced in BSA Report

- The current IV&V team is periodically reviewing the status of observations from the prior IV&V team that remained open as of the final report (January 2015).

IV&V Output

- Monthly Reports
- Feedback, Observation/recommendations, Conditions noted

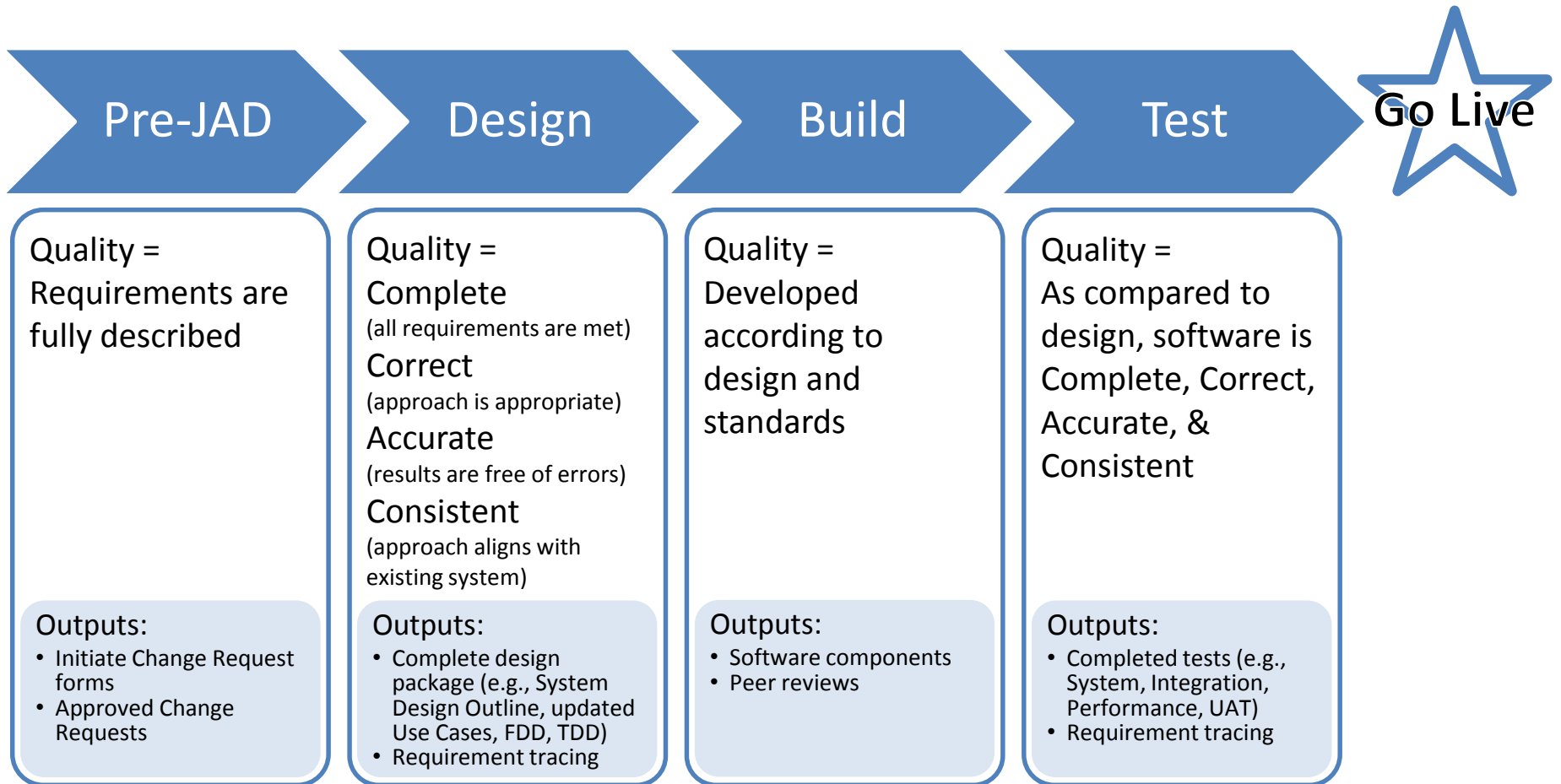
IV&V Reporting Calendar



Report Month	Expected Focus	Arch.*	Config. Mgmt.*	Software quality*	Test Review*	Design Quality*	Dev. Approach*	Project Mgmt.*
August 2016	Introduce IV&V purpose, focus areas, criteria Review current project progress against prior recommendations (e.g., performance report observations, past IV&V and IPOC findings) Set up reporting calendar for coming quarter							
September 2016	Design Quality - JAD approach Design Quality - requirements definition Development approach Test Review - ST/IT/UAT effectiveness Architecture - application architecture Project team's progress against prior recommendations Readiness for R16.9 Go-Live	☑			☑	☑	☑	
October 2016	Development Approach - (e.g., review of practices in R16.9) Development Approach - JAD approach (progress) Design Quality - requirements definition (progress) Configuration management Test Review - ST/IT/UAT effectiveness (retrospective) Project team's progress against prior recommendations		☑		☑	☑	☑	
November 2016	Project management (e.g., improvement over prior performance reports) Software quality (e.g., coding standards, software metrics) Architecture - data architecture Data Integrity/Quality Configuration management Development approach - standards present during R16.9 Project team's progress against prior recommendations	☑		☑		☑	☑	☑
December 2016	Project management (e.g., improvement over prior performance reports) Software quality (e.g., coding standards, software metrics) Data Quality Project team's progress against prior recommendations Also: Special report on status of prior IV&V team's findings			☑				☑

* These areas of focus are defined on the previous slide.

Quality criteria through the lifecycle



Summary of IV&V work to date



- Five monthly Reports including three types of findings:
 - Observations with recommendations
 - Feedback with suggestions
 - Conditions noted
- Eleven Observations and Recommendations
 - Of the observations opened the majority of observations are focused in requirements and design phases; IV&V has focused on these areas because quality is designed into software, as opposed to quality issues are detected in testing.
 - CalHEERS project has a defined process for responding and tracking responses to IV&V observations.
 - CalHEERS management team has developed an action plan for each recommendation
 - To date two observations have been fully resolved; others are in progress.
- Provided many points for CalHEERS consideration
 - Feedback - the aim is to give feedback quickly to allow corrective action while work is still in progress. Smaller in scope and less significant than Observations.
 - Conditions noted – results of IV&V analysis and assessments of specific focus areas identified in IV&V scope of work. This includes areas where processes are working well.