



Nodal Testing

Eileen Hall

Special Nodal Program Committee

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Items to Address

- **Testing Czarina Role and Responsibilities**
- **Business Role in Creation and Approval of Testing Work Products**
- **Defect Categorization and Prioritization**
- **Severity and Priority Definitions**
- **Cone of Complexity Through Testing Phases**
- **Work Product Participants for Nodal Testing Phases**
- **Nodal Testing Phases and Quality Gates**
- **Rationale for Exceptions: FAT Exit**
- **All Critical Defects are Resolved**
- **Testing Program Controls**
- **Summary**

Testing Czarina Role and Responsibilities

- **Ensure testing strategies and practices are effective and well coordinated**
- **Provide oversight for entry and exit criteria compliance**
- **Manage the categorization and prioritization of defects to resolution**
- **Provide the testing quality metrics to drive continuous improvement**

Business Role in Creation and Approval of Testing Work Products

- **Business is closely involved in the creation and approval of all testing work products**
- **Test strategy for each phase of testing**
 - Created by testing leader responsible for phase of testing
 - Approved by relevant business and program leaders
- **Test suites for each cycle of testing in a phase**
 - Created from requirements by vendor or technical SME
 - Approved by business team (SMEs)
 - Review criteria used for test suite
 - Ensure completeness – all functionality is covered
 - Verify robustness – covers boundary conditions, data variations, etc.
 - Verify each includes negative path testing

Defect Categorization and Prioritization

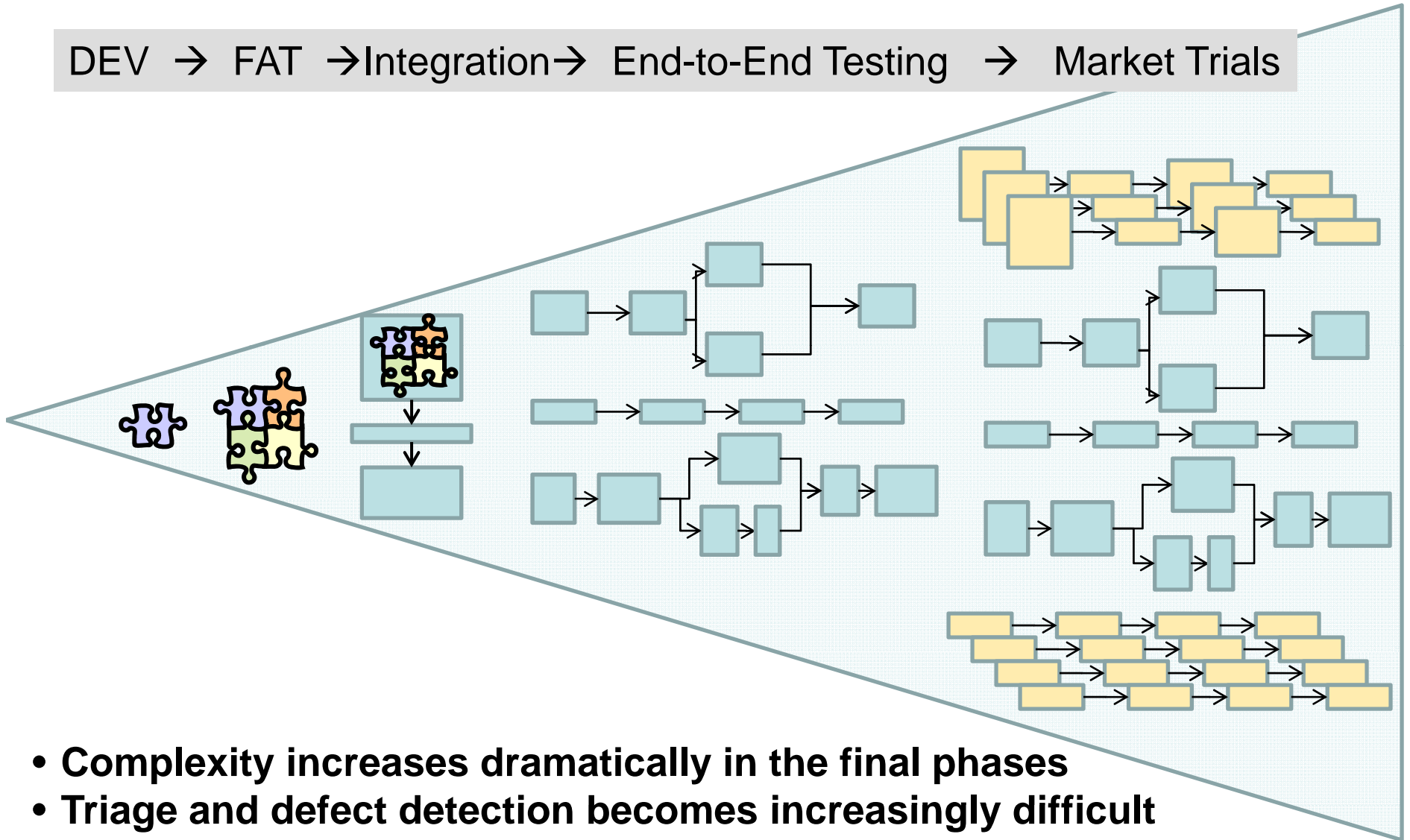
- **Testers capture all defects in the Quality Center database**
- **Defect Manager categorizes defects by both severity and priority**
 - Severity indicates the impact to system or user
 - Priority indicates the urgency of repairing the defect
- **Defect Manager assigns defects to the appropriate project**
- **Eileen Hall verifies that all the defect data is correct and consistent across the program**
- **Project manager identifies defect fixes required in next patch release and negotiates with development team**
- **Tester verifies a defect repair and closes the defect**
- **Defect manager validates all closed defects**
- **Eileen Hall validates closure of all critical defects**

Severity and Priority Definitions

- **Severity levels**
 - 1 System Crash/Data Loss
 - 2 Loss of core functionality – no workaround available
 - 3 Loss of functionality with workaround
 - 4 Minor user impact
 - 5 Cosmetic/Documentation error
- **Priority within each Severity level**
 - 1 Must fix prior to go-live and rush to fix in next release
 - 2 Must fix prior to go-live but more latitude in when fix is done
 - 3 Not critical to fix before go-live

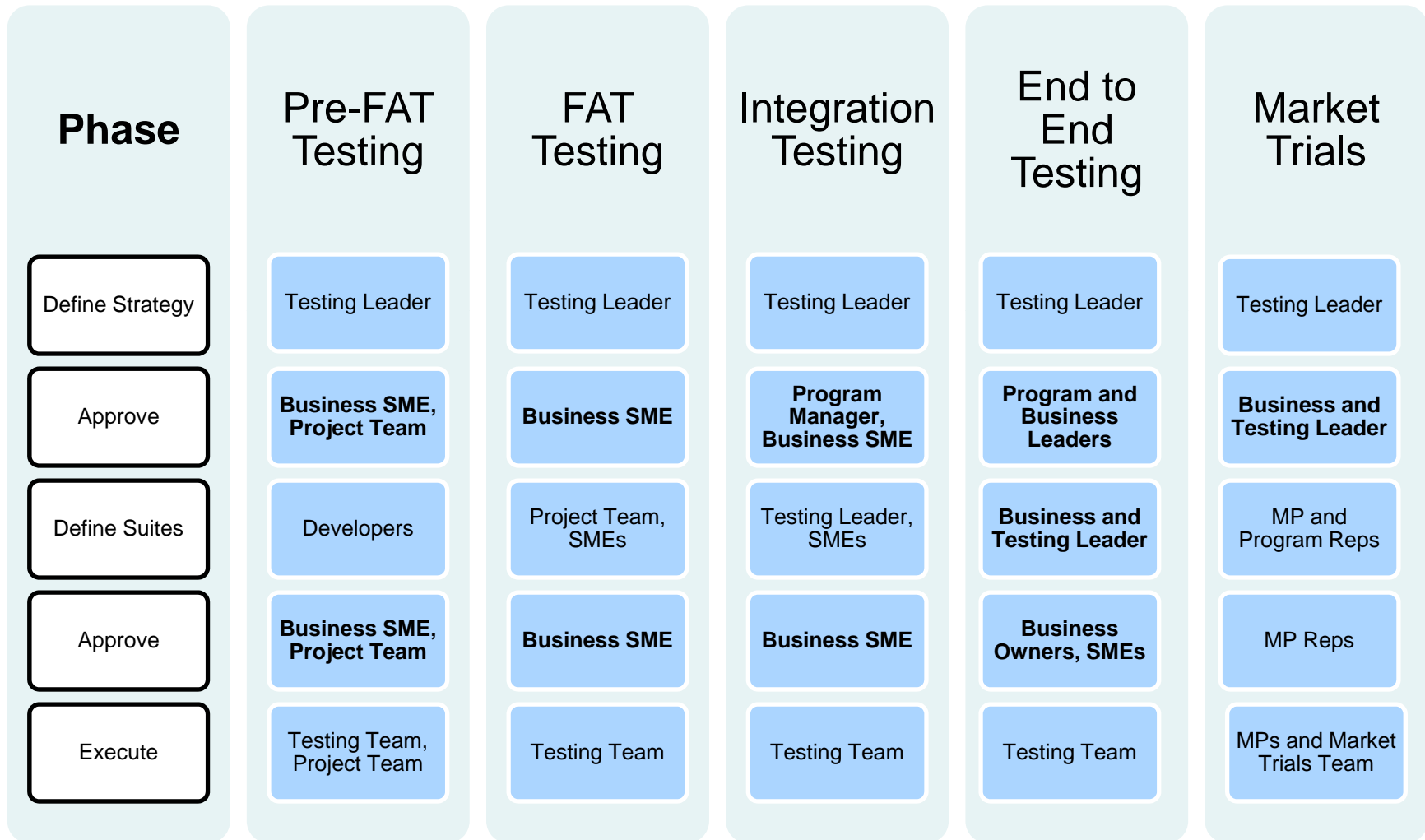
Cone of Complexity Through Testing Phases

DEV → FAT → Integration → End-to-End Testing → Market Trials



- **Complexity increases dramatically in the final phases**
- **Triage and defect detection becomes increasingly difficult**

Work Product Participants for Nodal Testing Phases

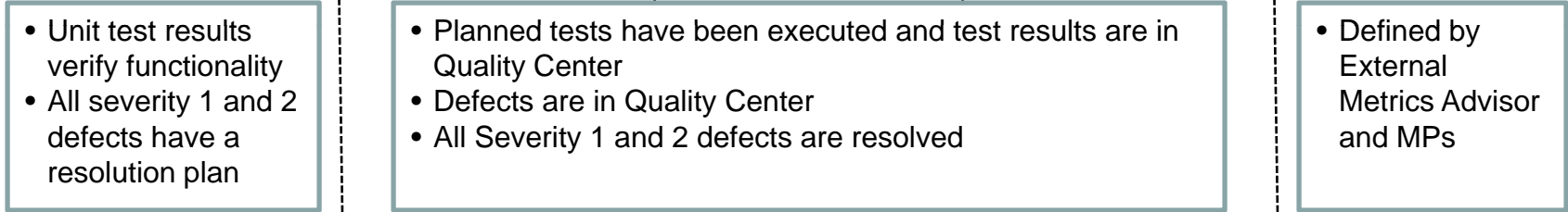


Nodal Testing Phases and Quality Gates

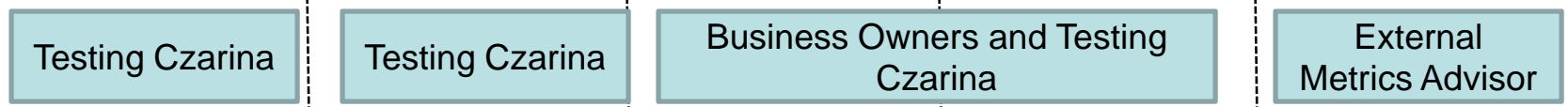
Phases



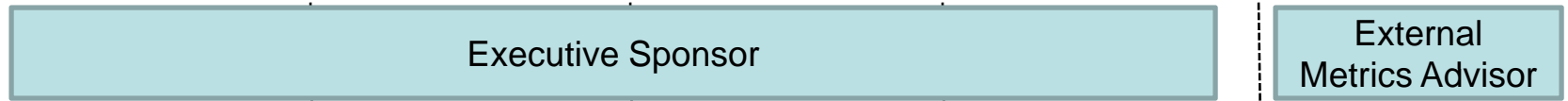
Exit Criteria



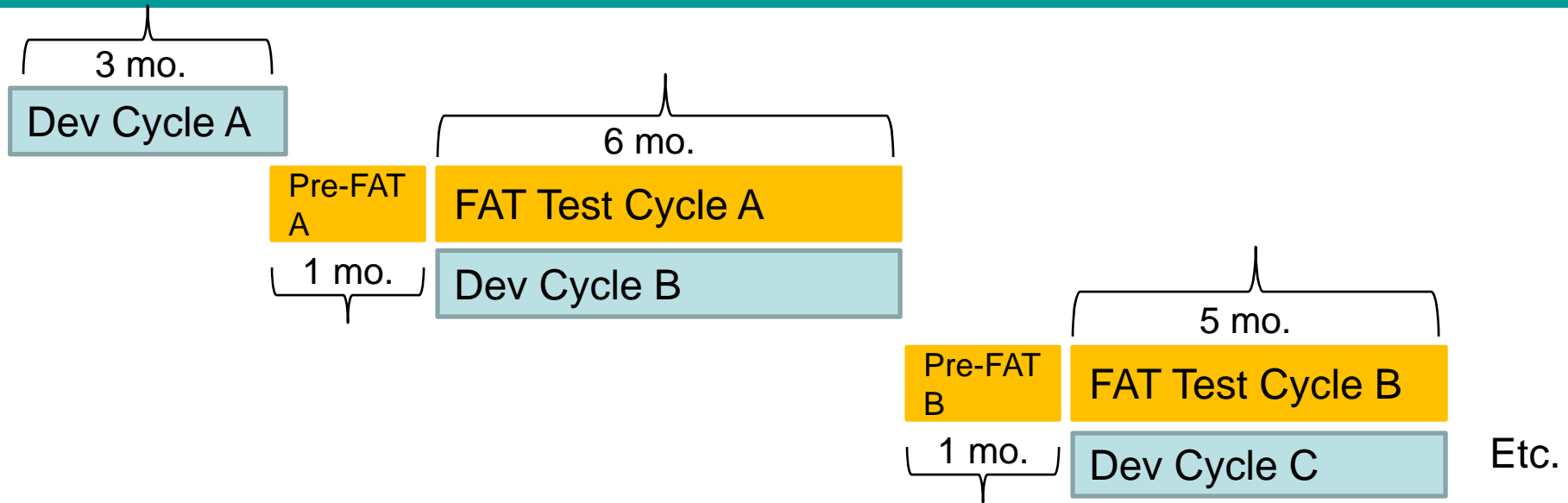
Approver of Exit Criteria



Exceptions – as needed for program success, informed decision made by:



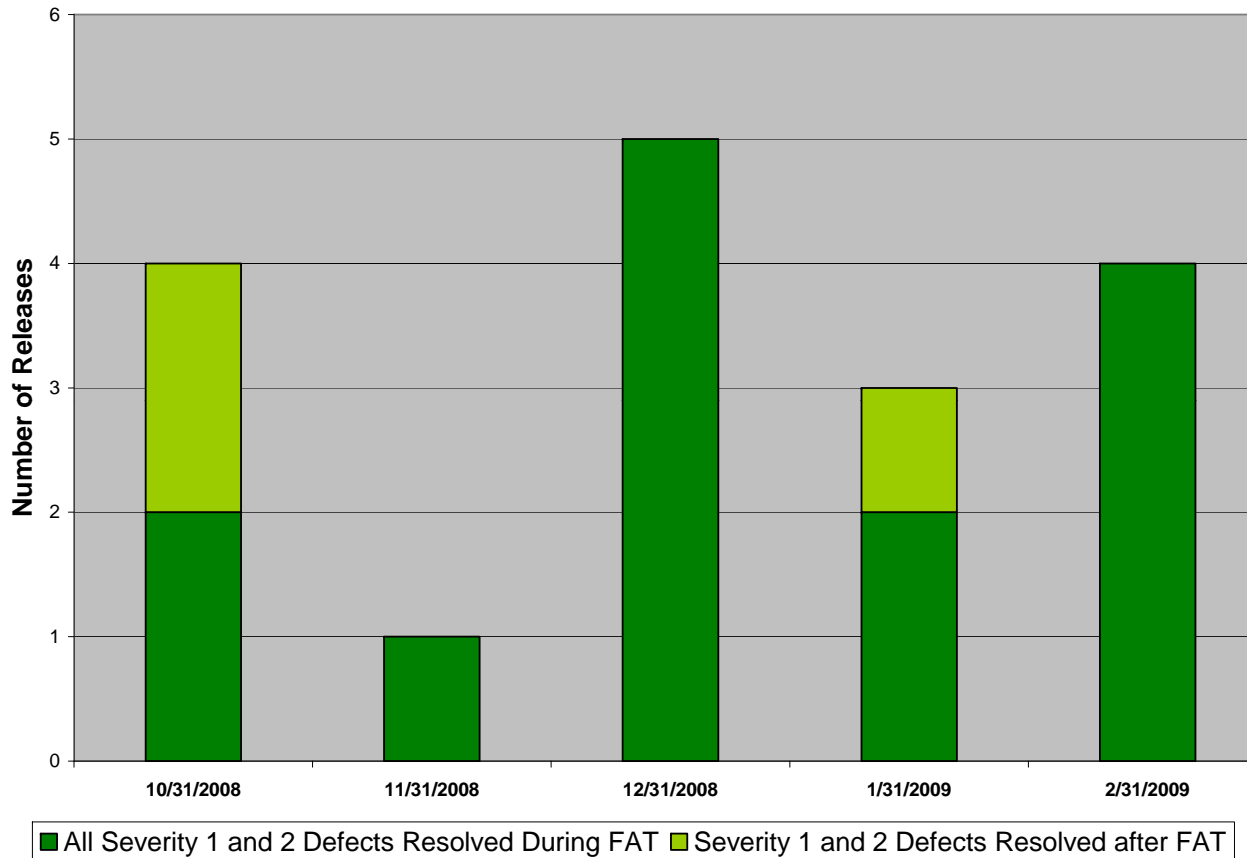
Rationale for Exceptions: FAT EXIT



Overlap of development and testing requires accommodation

- During FAT execution, vendors are working on new functionality required for the next delivery
- Next delivery will also contain fixes for defects detected during a previous FAT cycle.
- Some critical defects may not be resolved until a subsequent delivery
- However, all critical defects **are** resolved

All Critical Defects are Resolved



If an exception is granted to allow FAT testing completion with severity 1 or 2 defects open, ALL of those defects are resolved in a subsequent build.

Testing Program Controls

- **Defect Workflow**
 - A developer CANNOT close a defect
 - Only a tester or a phase-level defect manager can close a defect or set it to an end state
 - A phase level defect manager validates and approves each closed defect
 - A defect meeting is held at least weekly to review current defects
 - Eileen Hall continually monitors defect data; all anomalies are investigated and remedied as necessary
- **Quality control measures are used at several levels**
 - Project level, used by projects and Eileen Hall
 - Program level, published by Eileen internally to the program
 - Program level, published by Eileen externally to Nodal web site

Summary

- **Eileen Hall provides independent oversight for all testing efforts and defect management processes**
- **Business is closely involved in the creation and approval of all testing work products**
- **Defect management process is rigorous and responsibilities are clear**
- **All defects are categorized and prioritized consistently irrespective of the originating environment; therefore, an integration defect may have a higher priority than a FAT defect**
- **All critical defects from all testing phases underway are addressed, taking program-wide needs into account**

Supplemental Information

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Defect Management Roles

Role	Description
Business Team (SME or Owner)	This role provides business domain expertise about an area under discussion. In some cases this may be the business owner who is responsible for performing/managing the performance of the business function.
Development Team	This role develops software components and performs developer testing in accordance with the vendor's procedures. This role may be an internal (ERCOT) or external vendor.
Defect Manager	The defect manager verifies that a defect is valid, the necessary defect fields are accurate and assigns the defect to the appropriate project
Tester	This role tests the software, using test cases and test scripts that verify that the software meets its documented requirements
Project Manager	This role plans, manages and allocates resources, shapes priorities, coordinates interactions with customers and users, and keeps the project team focused. The Project Manager also establishes a set of practices that ensure the integrity and quality of project work products.
Testing Czarina	This role exercises collaborative independent oversight of the program's testing effort and defect data, establishing and enforcing criteria and measures.

Defect Management Responsibilities

<i>Defect Management</i>	Business Team	Development Team	Defect Manager	Tester	Project Manager	Test Czarina
Responsibilities: R - Responsible for developing an item A - Approver of item C - Consulted or participates in development I - Informed of or given the results of the work						
Identify a Valid Defect			A	R		I
Establish Defect Severity			R	C		A
Assign the Defect to the Appropriate Project	C	C	R	C	I	A
Prioritize a Defect within a Project	C	R	I	I	A	C
Verify Defect Repair			A	R		I
Close the Defect	I	I	A	R	I	C
Validates All Critical Defect Closures	I	I	I	I	I	A

Defect Workflow

