



FRA

Earned Value Management System

January 9, 2009

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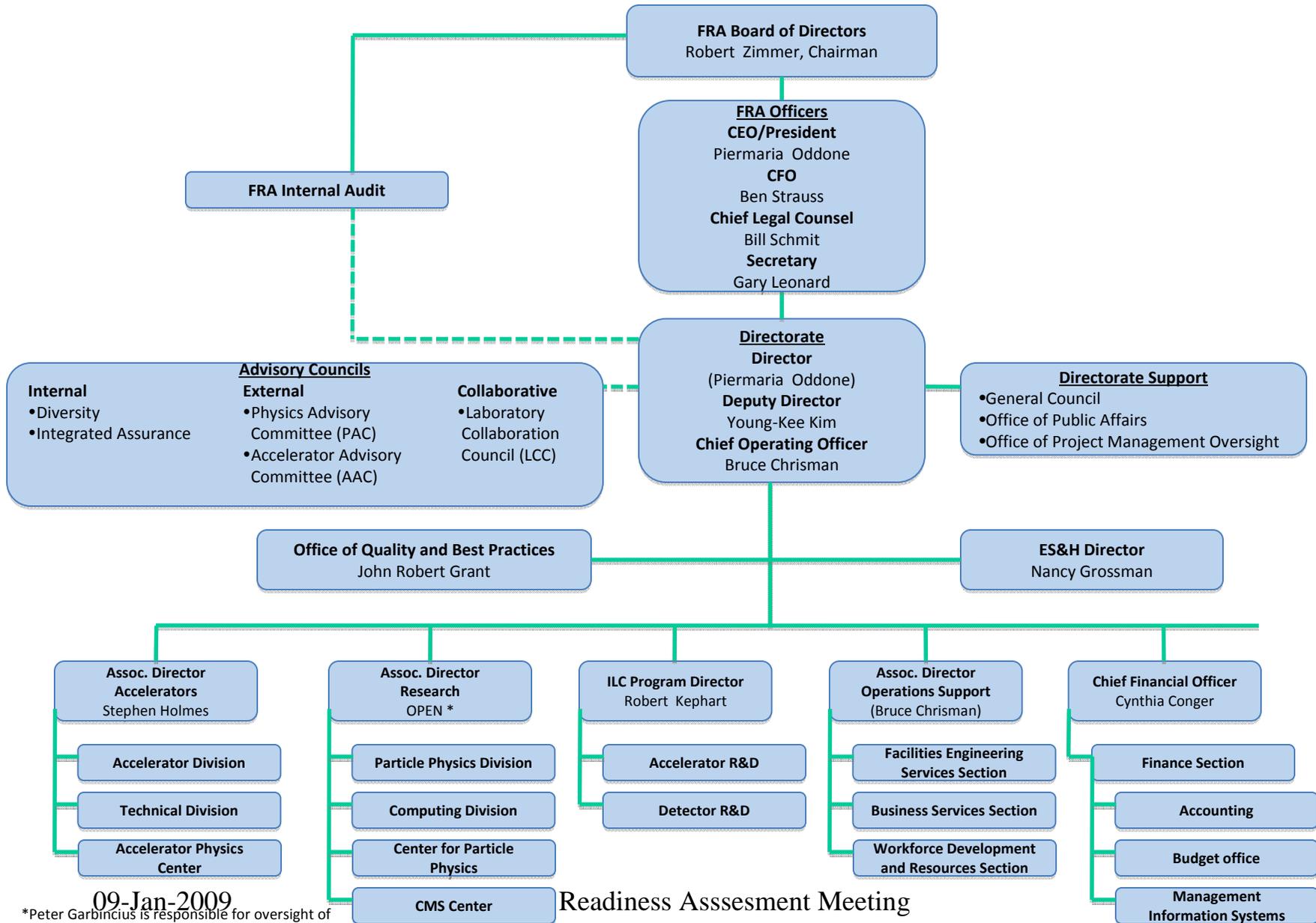
Presentation Outline

- EVMS History at the Lab
- Organization
- FRA EVMS Documents and Process
- Contingency vs. Management Reserve
- Non Costed Scientist Resources
- Training
- Next Steps

Earned Value History

- EV has been performed at some level since the Main Injector Project in the 1990s.
- In 1998 the Lab purchased Welcom's (now Deltek) Cobra software tool for managing project costs, measuring earned value, and analyzing budgets, actuals and forecasts. The software was purchased to support EVM on the NuMI Project. The Cobra software was made the Lab's standard for project cost and EV reporting.
- 1st Draft of Fermilab EVMS Description was generated in 2006, no implementing procedures at that time
- The FRA System Description and Implementing Procedures were approved for use 17 October 2008

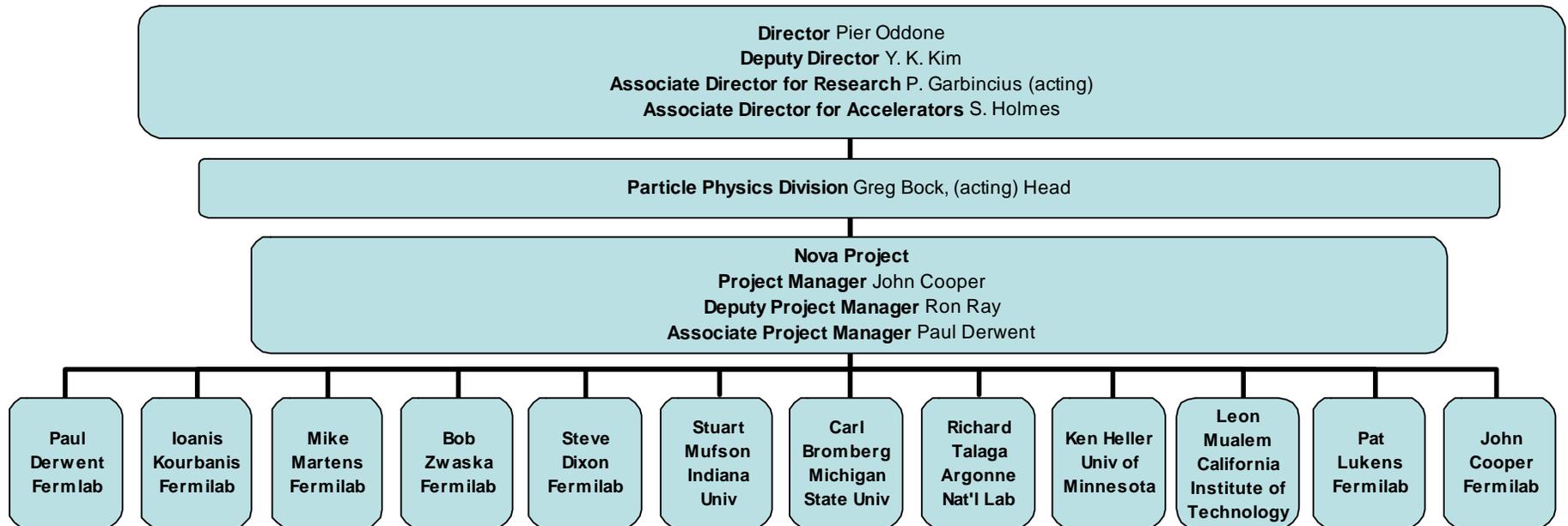
Fermi Research Alliance (FRA) Organization



09-Jan-2009
 *Peter Garbincius is responsible for oversight of projects until position is filled

Readiness Assesment Meeting

NOvA's Organization



FRA EVMS Documentation

- EVMS Documents
 - FRA Earned Value Management System Description
 - 12.PM-001 Project WBS, OBS, RAM
 - 12.PM-002 Control Accounts, Work Packages, Planning Packages
 - 12.PM-003 Work Authorization
 - 12.PM-004 Project Scheduling
 - 12.PM-005 Cost Estimating
 - 12.PM-006 Monthly Status and Reporting
 - 12.PM-007 Change Control
 - 12.PM-008 EVMS Surveillance & Maintenance
- Ownership
 - OPMO - responsible for maintaining the EVMS and maintaining interfaces with existing Fermilab business and management systems
 - QQBP - responsible for surveillance of the EVMS to ensure Lab adherence to the approved certified system

Primary Project Management Tools

- Accounting
 - Oracle's e-Business Suite - Project Costing Module
- Scheduling
 - Deltek Open Plan & Microsoft Project
- EV Cost Processor
 - Deltek Cobra

FRA EVMS

- Consistent with ANSI/EIA-748 Standard for Earned Value Management Systems
 - Organization
 - Planning, scheduling and budgeting
 - Accounting considerations
 - Analysis and management reports
 - Revisions and data maintenance
- Crosswalk between ANSI/EIA748 and the System Description / Implementing Procedures is in Appendix A of System Description

Organization

- In Progress

Planning, Scheduling and Budgeting

- Work Authorization from DOE to FRA
 - Difference between Line Item and Major Item of Equipment (MIE) Projects
 - Line Item
 - CD-0 approval to proceed with Conceptual Design
 - CD-1 PED funds directive for Preliminary Design
 - CD-2 approval of baseline
 - **CD-3 Construction Directive**
 - MIE
 - Guidance in Financial Plan for project budget
 - CD-0 approval to proceed with Conceptual Design
 - CD-1 Approval to proceed with Preliminary Design
 - CD-2 Approval of baseline
 - CD-3 Proceed with Construction
- John will discuss the Work Authorization from Project Manager to CAMs

Planning, Scheduling and Budgeting (continued)

- Work Packages and Planning Packages
 - Have not utilized Planning Packages in the past. System allows for both and see we see use for Planning Packages on future projects.

EVMS

- Insert Diagram Planning Phase

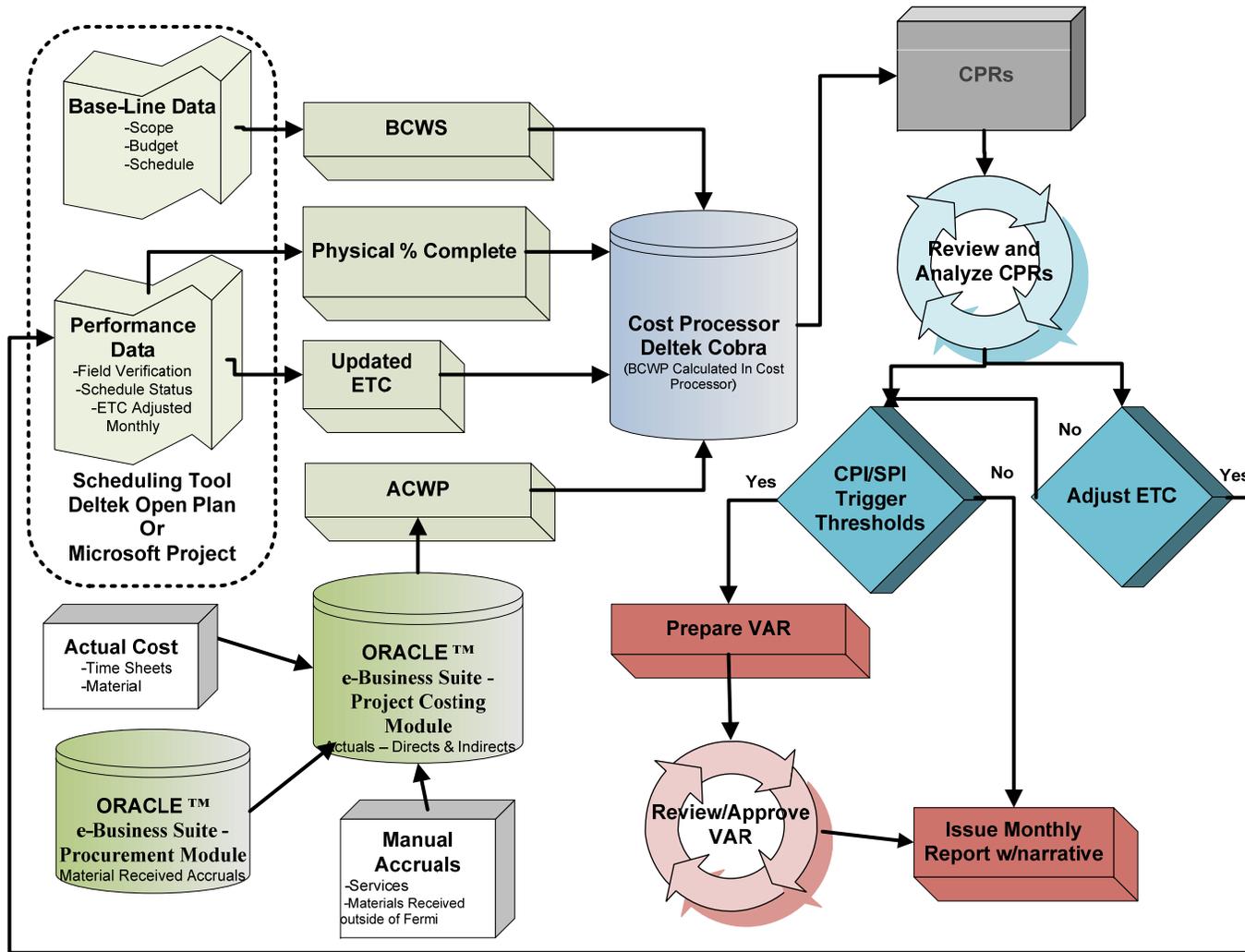
Accounting Considerations

- Suzanne working on input for slide

Analysis and Management Reports

- FRA management reviews project performance including EV data as part of the project's monthly report and during monthly Project Management Group (PMGs) meeting chaired by a Associate Director
- **In Progress**

EVMS



Variance Thresholds

- Variance thresholds apply to both CPI and SPI at the control account (CA) level. The variance thresholds apply to both cumulative and a three-month rolling average current period (this is being change to just current period).
- The color codes are:
 - Green ≥ 0.88 to ≤ 1.2
 - Yellow ≥ 0.85 to < 0.88 , > 1.2 to < 1.5
 - Red < 0.85 , > 1.5

Variance Thresholds (continued)

- Green – The cause of the variances within the green threshold (other than at 1) the CAM should understand the cause of the variance and determine if corrective actions are required. No formal documentation or reporting is required.
- Yellow – Variances within the yellow threshold is considered a warning that variances in future reporting periods could trend into the red threshold range. The CAM is to analyze these variances to determine the cause and implement appropriate corrective actions. The Project Manager is to be informed of the results of the variance analysis.
- Red – Variances that are within the red threshold are considered significant. The CAM is to analyze the variances to determine the cause and implement appropriate corrective actions. A Variance Analysis Report (VAR) is to be prepared by the CAM per section 4.4 of this procedure.

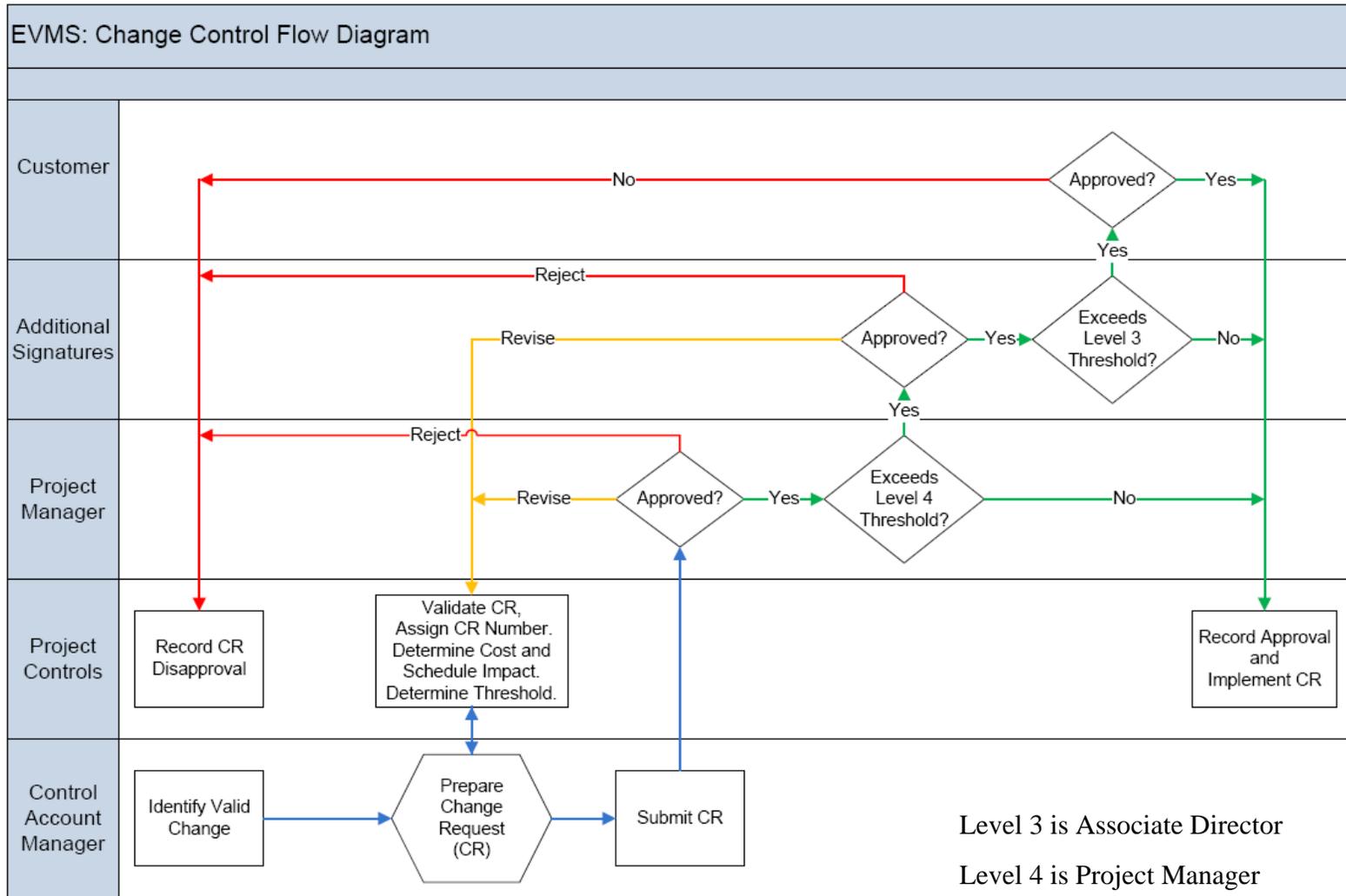
Variance Thresholds (continued)

- Selection of Thresholds
 - Reviewed thresholds that were used by DOE in PARS at the project level
 - Reviewed thresholds used by other Labs
 - Had many discussion on various threshold in the EVMS Implementation Core Team and in the Oversight Committee.
 - It was agreed that the thresholds should give an early enough warning so action can be taken to address the issues by the project and gives visibility to senior management.

Revisions and Data Maintenance

- In Progress

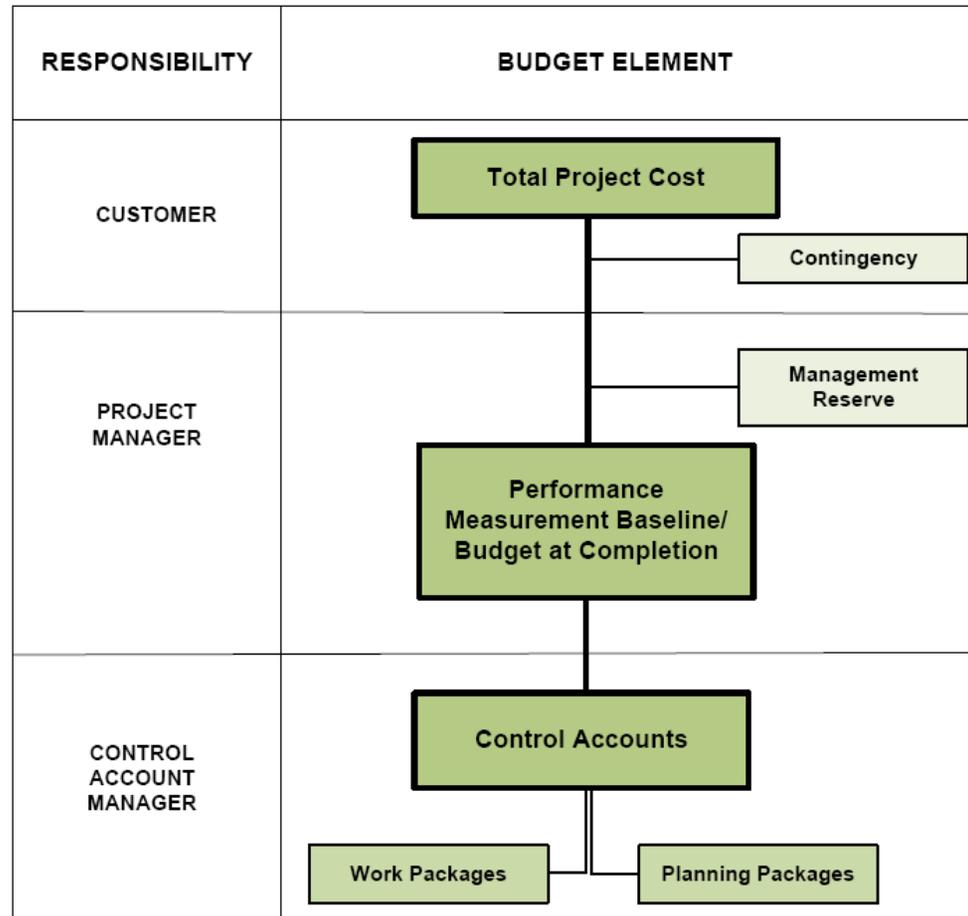
Change Control Process



Change Control Process

- Change Control Thresholds are project specific and agreed on with DOE.
- High level thresholds (DOE's) are identified in the Project Execution Plan (PEP).
- Lower level thresholds (FRA's) are identified in the Project Management Plan (PMP)

Contingency vs. Management Reserve



Contingency vs. Management Reserve

- Definitions
 - **Contingency:** The portion of the project budget that the customer holds in reserve to accommodate unknowns regarding requirements and uncertainty that is outside the scope of the contractor baseline, but is within the scope of the project. Contingency may be used for additional scope and work that is necessary to meet current project mission requirements, but was inadvertently omitted but required. It is not a part of the Performance Measurement Baseline (PMB)
 - **Management Reserve:** That portion of the approved contingency budget assigned by the customer or the Federal Project Director (on DOE Projects) to the Project Manager for management control purposes.

Contingency

- Contingency is developed at the work package level, but is not assigned to specific segments of work. Contingency is under the control of the customer, or on DOE projects, the Federal Project Director
- Project management establishes the contingency based on a risk analysis of the project work scope for all elements of the project
- Contingency transactions are executed through the project change control system, and documented in the project change control log
- Change control thresholds for each project are agreed on with DOE and documented in the Project Execution Plan (PEP) and the Project Management Plan (PMP)

Management Reserve

- Management reserve is the portion of project contingency specifically assigned to the Project Manager for the management of changes within his approval authority. The Federal Project Director on DOE funded projects, or the customer on non-DOE projects, may chose to periodically allocate a portion of the contingency budget to the Project Manager as management reserve. Use of management reserve is controlled and documented like contingency, per the change control process.
- Currently the NOvA Project Manager does not have a separate Management Reserve, but does have approved change control thresholds to allow the use of contingency.

Non Costed Scientist Resources

- Implementing Procedure 12.PM-005 Cost Estimating
 - For scientific labor on DOE projects, the labor rate will be set to comply with “OHEP Guidance to Ensure Compliance with DOE O 413.3A.”
- FRA has been directed that some scientist labor is not part of the project cost
- The resource hours for non costed scientist labor is loading into the schedule
- Progress on their work is tracked with milestones
- In general work packages with non costed scientist labor has costed labor also, which allows EV to be measured on that work

EVMS Training

- Training Requirements for Projects
 - Read FRA EVMS Description Document & Implementing Procedures
 - 2 Day EVMS Class
 - Special Topic Training as needed
 - Annual refresher training
- Training for NOvA
 - 2 Day EVMS Training – Held Dec 3-4
 - Specific Topic Training for NOvA CAMS
 - 18-Nov: EVMS Certification Process
 - 9-Dec: Work Authorization/ Change Control/ Variance Analysis
 - 6-Jan: Reporting Progress, EVMS Reports, and Analysis

Next Steps

- Mock Certification Review performed by external consultants week of 12-Jan-2009
- Update FRA System Description and Implementing Procedures based on discussion with OECEM/Tecolote and feedback from Mock Certification Review