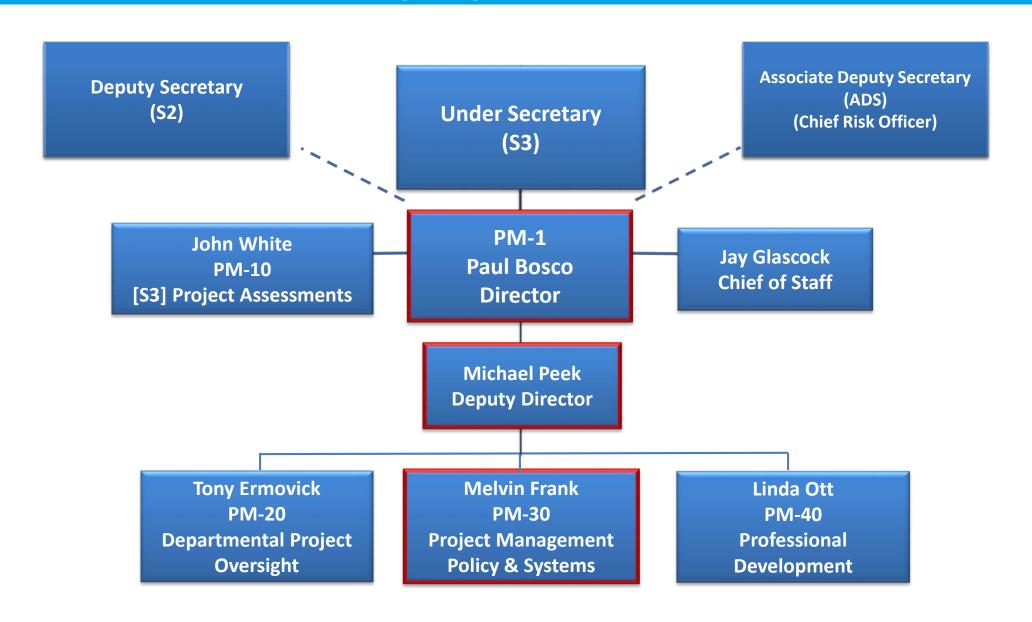
DOE Integrated Project Management In the Information Age



Melvin Frank
Chief, Project Management Policy and Systems (PM-30)
Office of Project Management Oversight and Assessments (PM)
Presentation for NDIA
August 31, 2016

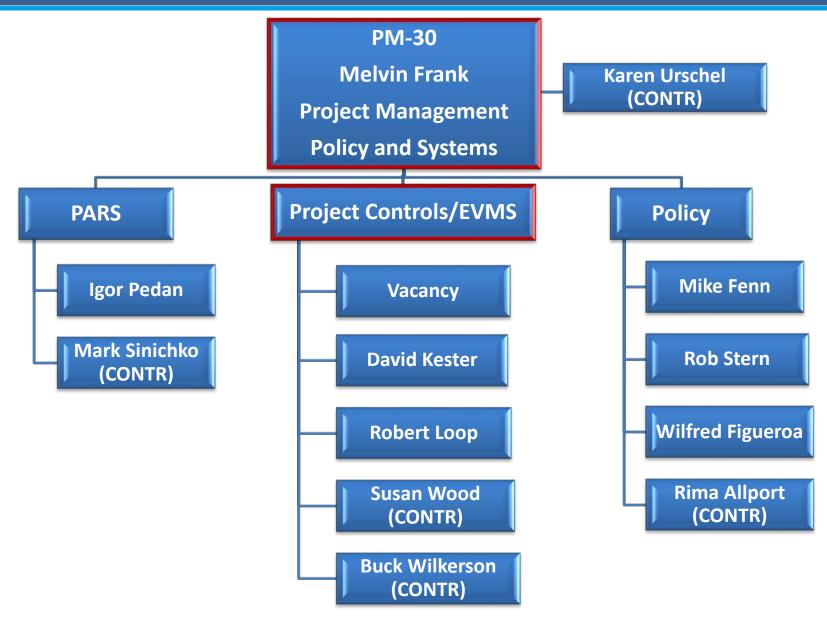
Office of Project Management Oversight and Assessments (PM)





PM-30 Organization Chart





EVMS Reviews – Then and Now Evolution of Data Driven Approach



- Past approach Through 2010
 - Assess contractor EVM system compliance during certification reviews and surveillances
 - Limited cost/schedule data analysis
- Recent years Since 2011
 - Moved in direction of risk-based, data driven approach
 - Roll-out of PARS II and Assessment-Focused Standard Operating Procedures
- Recent surveillances have improved over past in identifying system issues
 - Data traces demonstrate shortcomings in system integration between areas (budgeting, scheduling, work authorization, etc.)
 - More work on systematic data analysis driven process
- Current goal is fully automated data analysis to flag areas of concern

EVMS Issues to Overcome

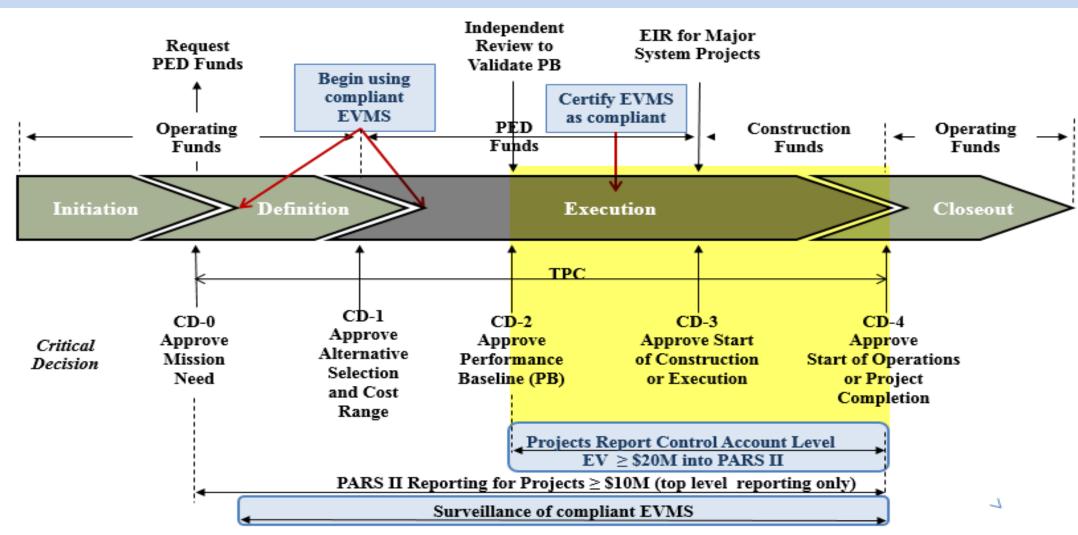


- Attitude that EVMS is merely a reporting tool NOT a project management tool
 - Not used for front-end planning
 - Scope/cost/schedule not integrated
 - Risks not identified/managed
 - Comprehensive Baseline Reviews not conducted
- Invalid project schedule
 - Not predictive; inaccurate progress assessments
- Baseline manipulation to mask performance
 - 1.0 CPI/SPI mentality
 - MR/Contingency and Budget/Funds confusion
- Significant Total Project Cost increases not forecast by EVMS
 - EAC not realistic nor inclusive of entire scope

Integrated EVM / PM Acquisition Lifecycle



EVM is Integral to DOE's PM Philosophy from CD-0 to CD-4



Typical DOE Acquisition Management System for Line Item Capital Asset Projects

Priority Tasking Identified: FY15 Plan



Develop FY 15 EVMS Strategic Plan

- Based on complete assessment of EVMS within DOE
- Conducted by independent entity recognized and respected by government and industry as EVMS expert
- Assess robustness and sufficiency of all policies, procedures, guidance, practices, training
- Conduct a competency assessment and gap analysis (knowledge, skills and abilities)
- Assess sufficiency of resources and organizational construct (staffing levels and distribution)
- Conduct Root Cause Corrective Actions for all EVMS issues and concerns

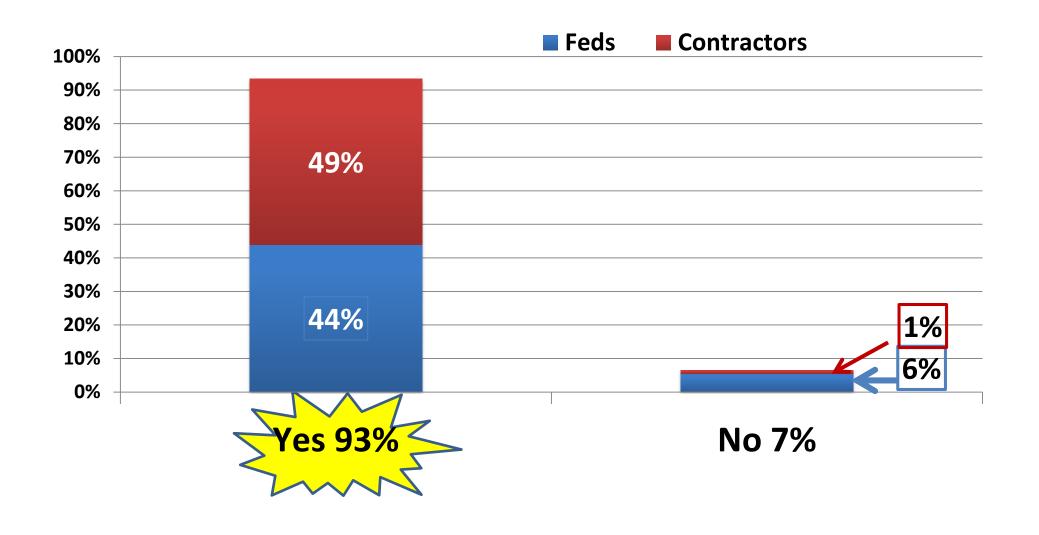
TO BE THE BEST

Improving Integration of PM and EVM Study: Survey Results



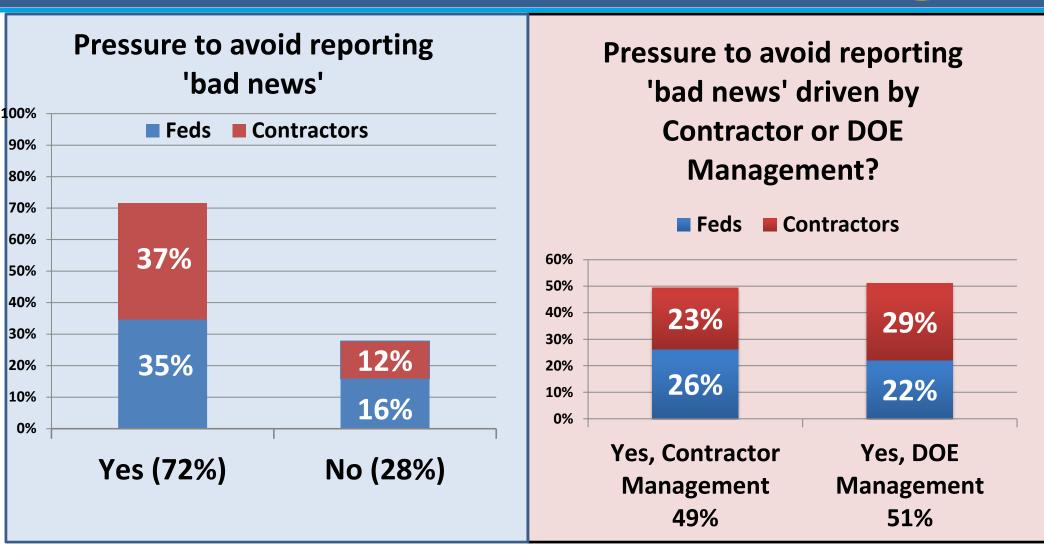
To EIA-748 compliant EVM Systems provide data to make management decisions and forecasts?





It is all good news until it isn't . . .





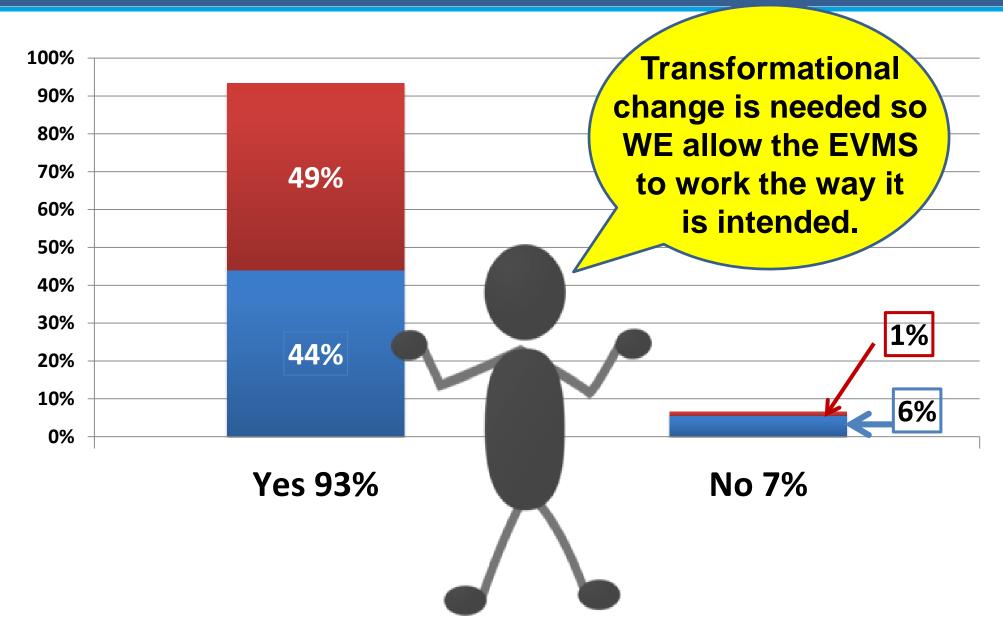
Comments Re: Reporting Bad News



- (F) Bad news tends to be punished way more than is warranted, and this drives a "hide and seek" behavior, which is detrimental to both DOE/NNSA's priorities, as well as the contractor's.
- (C) Too much trying to get around EVMS or trick the system with huge WPs and CAs and long durations that cannot be used for real analysis.
- (C) Pressure by local DOE to "BCP to Green". They do not want the project to go Red in PARS II.
- (F) Very few of the headline challenged projects over the past few years were a surprise to anyone, so it also doesn't help when so many run for cover – an example of behavior that sends the wrong message to those we want to be open and objective and timely in their reporting.

To EIA-748 compliant EVM Systems provide data to make management decisions and forecasts?





• The primary message is clear (and no coincidence):

CONSISTENCY

- Increase consistency/reduce complexity regardless of who is assessing compliance (HQ PM, Project Management Support Office (PMSO), Federal Project Directors (FPD), or Contractor)
 - Consistent application
 - Consistent execution
 - Consistent results

TY16 Call to Action: ConsistencyMeasures



- Transformational Change
- One Certifying Authority Office of Project Management Oversight and Assessments (PM)
 - O 413.3B Update Changes EVMS Thresholds
 - ≥\$100M: PM-led EVMS Review Team conducts certification and surveillance
 - <\$100M: PM-led Surveillance on an exception basis or at PMSO request

Focusing DOE Compliance Efforts

- EVMS Implementation Handbook (EVMSIH)
 - Improvements
 - Tested in a Pilot Environment
 - Increased Automation
- Standard Operating Procedures (SOPs)
- Roadside Assist Visits (RSAV)
- Communication
- Collaboration



DOE EVMSIH UPDATES

(V1.0 - V2.0)



EVMSIH Important Considerations



- Provide the necessary levels of interpretation to establish a consistent and clear definition of EIA-748 EVMS compliance
 - Based on an understanding of historical precedence and the present day needs of project management that when fully implemented can successfully pass a DOE EVMS compliance review
- EVMSIH based on the following authoritative sources:
 - Bowman Guide
 - DCMA EVMIG and DCMA DIG
 - NDIA Intent Guide
 - DOD EVMSIG
 - NDIA IPMD PASEG
 - GAO Schedule Guide

Benefits of the EVMSIH Solution



- Serves as a consistent, automated review standard
- Based on minimum expectations
 - Qualifying Expectations Lines of Inquiry (QE LOI)
- Establishes a basis for reciprocity expectations
- Provides flexibility for other CFAs to supplement for Agency-specific areas of concern
- Benefits the Entire EVMS Community
 - Mandatory in DOE
 - Recommended/Shared with CAIWG

EVMSIH Change Control



- Authoritative body of knowledge for determinations of EIA-748 EVMS compliance
 - September 2015: V1.0 Release
 - January 2016: V1.1 Release (DRAFT)
 - August 2016: V2.0 Release
- V2.0 update will define minimum compliance requirements with some QE LOI preferences designated as candidates for Continuous Improvement Opportunities (CIO)
- Revisions to the EVMSIH do not change the purpose and interpretation of compliance for each EIA-748 EVMS Guideline; however, testing protocols can alter significantly to help realize operating efficiencies.
- EVMSIH (3.0) Agile, incremental release strategy tied to CNS EVMS
 Pilot Project results

EVMSIH 2.0 – New Streamlined Look





EARNED VALUE MANAGEMENT SYSTEMS INTERPRETATION HANDBOOK EVMSIH (2.0)

U.S. DEPARTMENT OF ENERGY OFFICE OF PROJECT MANAGEMENT OVERSIGHT AND ASSESSMENTS (PM) WASHINGTON, D.C.

AUGUST 2016

The Mission of the Energy Department is to Ensure America's Security and Prosperity by Addressing Its Energy, Environmental and Nuclear Challenges through Transformative Science and Technology Solutions

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EVMSIH 2.0 – New Streamlined Look

IMPACT OF NONCOMPLIANCE

Failure to link scope with the WBS may result in required work being omitted or unauthorized work being performed.

QE LOI DISCUSSION

1.A.1. IS A SINGLE PRODUCT-ORIENTED WBS USED FOR A GIVEN PROJECT EXTENDED TO THE CONTROL ACCOUNT LEVEL AS A MINIMUM?

The key aspect of this QE LOI is a single, product/deliverable-oriented WBS extended to the CA level at a minimum to integrate, plan, and manage the project work scope, schedul requirements. In all cases, the contractor must extend the WBS to a level needed internal management control. This level should not be an arbitrary level establish project. The WBS is a direct representation of the work scope of each specific documents the hierarchy and description of the activities to be performed and their refusion to the project deliverables. The WBS is used as a nomenclature that demonstrates integrated by the project deliverables. The WBS is used as a nomenclature that demonstrates integrated by the project deliverables. The WBS represents the complete project scope.

For projects involving scope content being implemented by other performing entitie should also reflect this work content within the overall hierarchy of project work. performing entities may, or may not have standard contractual arrangements, they are responsible for specified WBS elements through some type of directed agreement arrangement. This work content must also be subdivided to an appropriate level of productofor project planning, control, and reporting. The resulting work elements must be clear and included within the project WBS under the correct hierarchical branches in just the as prime contractor WBS elements.

As the end product is decomposed into smaller sub products at lower WBS levels, the required by each element can be identified to functional organization units at a lower o level. At some level on each WBS branch, management will assign responsibility schedule, and cost performance. It is at this intersection of WBS element and organiza a Control Account (CA) is usually established, work is scheduled, budget is plat collected, and performance is measured, recorded and controlled. The technical requirements for each work product must be clearly specified and documented. As praccomplished, actual completion and technical requirements can be verified.

The WBS level at which a CA is established is primary a newtion of the size of the pr type of product. The responsible organization level is a newtion of the management sp and upper management's desire to delegate technical, schedule, and the responsibility

Filter and Sort on Testing Criteria by EIA-748 Guideline and QE LOI

Guideline I - Define the authorized work elements for the Program project. A work breakdown structure (WBS), tailored for effective internal management control. is commonly used in this process.

A Work Breakdown Structure (WBS) is the structure and code that integrates and relates all project work (scope, schedule and cost). It is the cornerstone of effective project planning, execution, control, status, and reporting. All the work contained within the WBS is to be identified, estimated, scheduled, and budgeted. The WBS contains the scope baseline necessary to achieve the technical objectives of the work described. It is generally a multi-level framework that organizes and graphically displays elements representing the work to be accomplished in logical relationships. Relationships among WBS elements and detailed descriptions of each element are presented in the WBS dictionary accompanying the hierarchical diagram.

ŧ	Interpretive Discussion	Test Steps	Test Metric	Metric Threshold	Artifacts
A.1	Is a single product-oriented WBS used for a given project extend	ded to the control account leve	l as a minimum?		
	The key aspect of this QE LOI is a single, product/deliverable-oriented	Manual Tests:			
	WBS extended to the CA level at a minimum to integrate, plan, and	1. Review the WBS and verify only	a. Compare the WBS Index	Document all	Project WBS Index,
	manage the project work scope, schedule and budget requirements.	one WBS structure is used for the	to the WBS structure in the	discrepancies as	WBS Dictionary, RAM,
		project.	RAM, WADS, IMS, EVM Cost	compliance concerns	WADs, IMS, EVM Cost
	IMPACT OF NONCOMPLIANCE		Tool, Control Account Plan		Tool, CAP, IPMR/CPR
	Without a single WBS that contains all authorized project work, the		(CAP), and the IPMR/CPR		(CDRL)
	project cannot be properly planned, managed, and executed.		Format I and verify the		
			WBS structure is consistent		
			through the system.		
			b. Using the previous trace		Project WBS Index,
			artifacts, verify the WBS is		WBS Dictionary, RAM,
			extended to the control		WADs, IMS, EVM Cost
			account level at a minimum.		Tool, CAP
			c. Identify any WBS		Project WBS Index,
			elements that are not part		WBS Dictionary, SOW
			of the project scope. If		and/or Performance
			present, these WBS		Work Statement (PWS)
			elements should not be		
			considered for purposes of		
		2. Verify the WBS is a product	a. Compare the WBS	Document all	WBS Dictionary, DOE
		oriented WBS consistent with the	Dictionary structure with	discrepancies as	PM WBS Handbook
		DOE PM Work Breakdown	the DOE PM WBS Handbook	compliance concerns	
		Structure (WBS) Handbook.	guidance.	-	
			b. Trace all levels of the		
			current WBS.		
			X = # of WBS elements that		
			are not product oriented		
			consistent with the DOE PM		
-	/ \		WBS Handbook.		
-	GL 1 GL 2 GL 3 GL 5 GL 6 GL 7 GL 8 GL 9	GL 10 GL 11 GL 12 0	GL 14 GL 15 GL 16	GL 17 GL 18 GL	20 GL 21 GL 22
•	GL 1 GL 2 GL 3 GL 5 GL 6 GL 7 GL 8 GL 9	GL 10 GL 11 GL 12	GL 14 GL 15 GL 16	GL 17 GL 18 GL	20 GL 21

Partnering to Pilot the DOE EVMSIH



Pilot Project:

- Allows CNS to participate in and contribute to the development of EVMSIH compliance protocols, while working towards obtaining DOE EVMS compliance credentials
- Simultaneously facilitate the development of testing methods and automated solutions that focus on identifying management processes and quality issues
- Establishes a collaborative laboratory-type environment to develop and test the EVMSIH, while understanding the commercial practices used in managing projects

Concept of Operations



- PM, as the lead for the CNS Pilot Project, is the final decision authority with respect to defining and determining EIA-748 EVMS compliance
- The scope requires mutual support by DOE HQ, NNSA, DOE Field Offices, EFCOG (as applicable), and CNS to successfully complete the pilot project objectives
 - Championing a culture of project management excellence and use of EVM as a necessary and viable project management practice
 - Collaborating on ways to help effect change and openly address problem areas that impact full EVMS implementation
 - Dedicating resources, and making the Pilot Project a high priority
 - Providing full and open access to business systems, data, and other pertinent information
 - Providing full and open access to key personnel

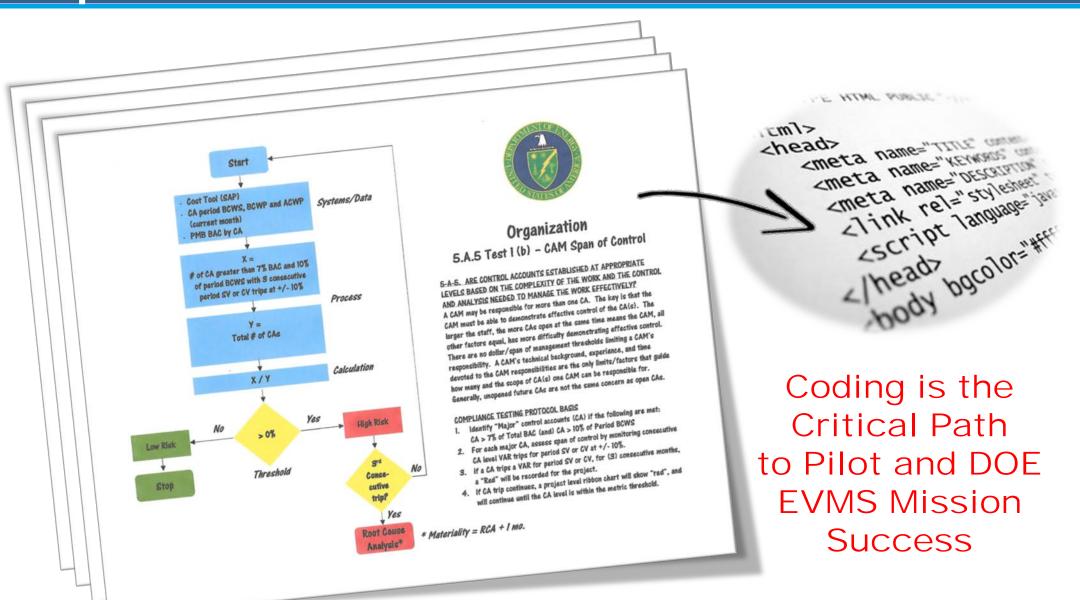
Measures of Success



- Progress made towards the successful completion of Pilot schedule IMP events and accomplishments
 - Compliance Reference Checklist (EVMS Description)
 - LOI Testing Protocol Flowcharting
 - Automation of Testing Protocols
 - QE LOI Burndown
 - QE LOI Test Results
 - Gap Analysis (Fishbone)
 - Action Item Closures
 - Full EIA-748 Compliance (CNS DOE Compliance Credentials)
 - EVMSIH 3.0 (Streamlined)

Pilot Flowcharting Process for EVMSIH 3.0 Updates





♥ Pil⁄

Pilot Master Plan and Schedule



 The period of performance of this Charter is expected to last from May 2016 through March 2017

_	EVMS Pilot Project	05/2/16 - 03/	/2/16 - 03/31/17	
_	EVMS PP Approval	05/2/16		
_	Kick off (@ Oak Ridge, TN)	5 /16/16		
_	Organization Assessment	07/15/16	08/22/16	
_	Planning, Scheduling Assessment	08/29/16	09/12/16	
_	Analysis Assessment	10/10/16		
_	Revisions Assessment	11/07/16		
_	Accounting Assessment	12/21/16		
_	Indirect Assessment	12/21/16		
_	Compliance Determination	03/31/17		

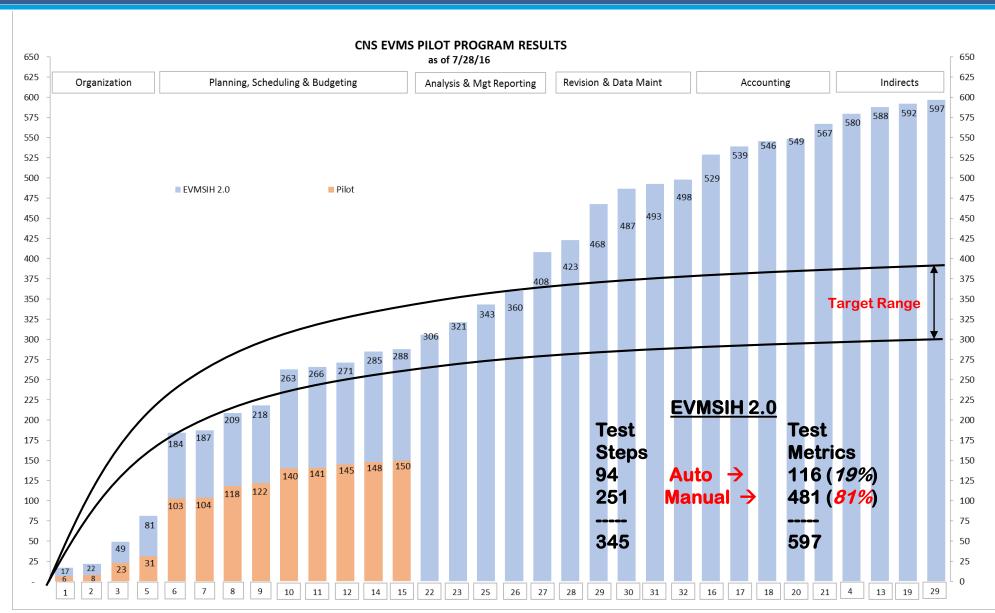
Pilot Results and Observations

- Good team chemistry and collaboration reaching consensus, getting results
- Significant number of PSB QE LOI Test Metrics removed from **EVMSIH 2.0**
 - From 207 to 119 (43% reduction)
- 96% (114 of 119) of remaining PSB QE LOI Test Metrics can be executed through an automated process
- **Consideration of Commercial Best Practices being weighed** against EIA-748 EVMS compliance requirements
 - **Matrix Organization**
 - Schedule Hierarchy and Detail
 - Management Support Systems Integration
 - Material Management and Subcontract Management

♥ Pila

Pilot Objectives QE LOI Stats





Pilot Objectives Final Thoughts

- Still working towards a March 2017 completion date
- **Active Compliance Review Underway**
 - 3 months of EVMS data needed; 2 consecutive 'greens' needed
- **Commitment and Automation Remain as Keys to Success**
- Just completed Analysis (Aug 22-26); Next is Revisions and begin reviewing test data draws (Sep 26 – Oct 7)
- Interviews with the PM, CAMs, and Project Controls will begin with first data draws
- Clarification of expectations are being identified to both the **EVMSIH and CNS EVMSD**
 - PM-30 approved re-writes will be basis for formal revisions to both documents
 - Any significant changes in processes will be communicated to the project team and assessed during the compliance review

CNS Compliance Considerations



EVMS Compliance Considerations

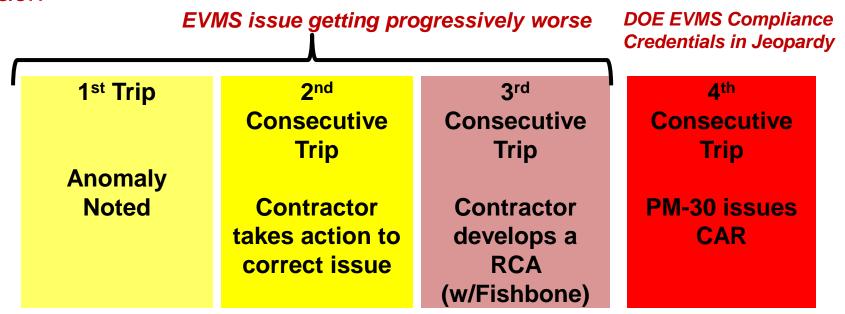
- DOE EVMS Compliance assessment is organized by the five guideline areas with Indirects broken out separately
- Compliance assessment is accomplished through data analysis, data traces, and manager interviews
- Whether descriptive processes and practices are compliant with EIA-748 guidelines
- √ Whether descriptive documents containing policies and procedures are followed in the actual execution of work
- ✓ How the data and information are generated by the EVM System.
- How the data are used in the decision making and management of the project
- Managers' knowledge of EVM System content, roles and responsibilities

EVMS Compliance Considerations



Process Approach

- EIA-748 compliance definitions are translated into testing protocol flowcharts and developed for each QE LOI
- 'Tripped' testing thresholds indicate an anomaly exists that may require further review and explanation
- Definition of thresholds or tolerance levels consider the materiality of the breach



Analysis Tool Evolution



Tools Used by PM-30 for Review



PM-30 Toolkit

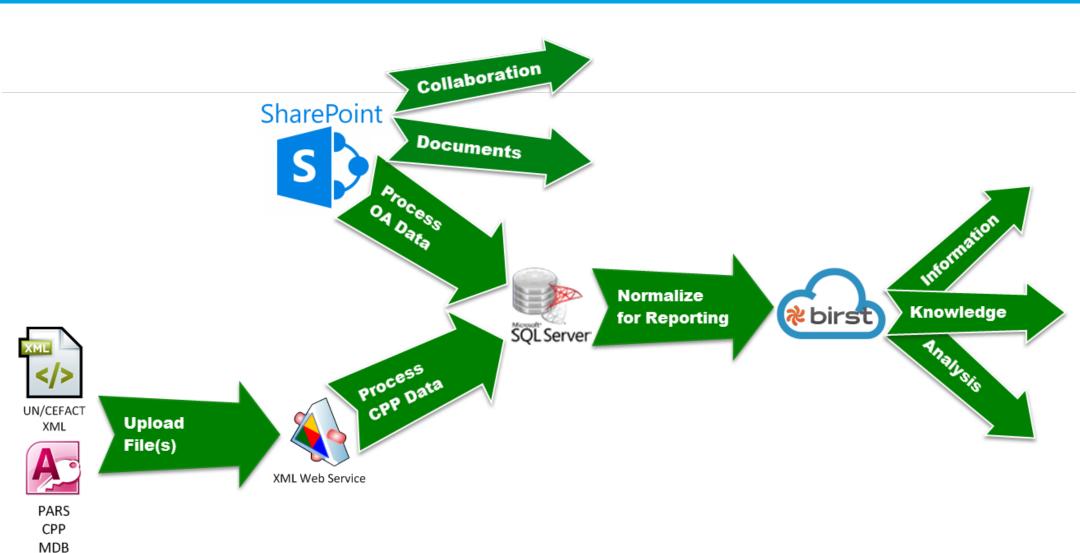
- -P6
- Deltek Acumen Fuse
- MS Office Professional including MS Access
- Contractors not required to use these same tools
 - However, these are what PM-30 uses to test compliance
 - Making available to all when complete
 - Most tests can be replicated in other tools and each test is defined to make this achievable

PM-30 Toolkit in Future

- PARS II will be upgraded to incorporate most if not all of the DOE EVMSIH Automated Tests
- -P6
- Validating tests as we conduct RSAVs, Reviews, etc.

PARS II Path Forward





Collaboration and Communication



EVMS Review (ERSOP)

- Applies to Certification, Implementation, Review for Cause, Surveillance, ICE, EIR, and Project Peer
- Independent Cost Estimate/Review (ICE/ICRSOP) and External Independent Review (EIRSOP)
 - Added EVM perspective for Performance Measurement Baseline (PMB)
 - Focus on technical assessment of scope, schedule, budget to establish a logical, realistic, and executable baseline
- Project Peer Review (PPRSOP)
 - EVM-related focus:
 - Achievability of cost and schedule baselines
 - Assess project status
 - Assess project management control systems
- EVMS Corrective Action SOP (ECASOP)
 - Detailed instructions on:
 - Corrective Action Requests (CARs) and Continuous Improvement Opportunities (CIOs) processes
 - Assessment of contractors procedures and implementation associated with Variance Analysis Reports (VARs) and Corrective Action Plans (CAPs)
- EVMS Project Analysis SOP (EPASOP)
 - Update after PARSII enhancements

Roadside Assist Visit (RSAV)



- HQ Comes to the Sites
- Work together with EFCOG members towards a common goal of effective EVMS implementation
 - Provide a chance for DOE personnel and EFCOG members from the various different sites to discuss their work in progress towards EVMS compliance
 - Review government requirements and expectations for EIA-748
 EVMS compliance and to discuss new methods and automated toolsets to maximize their usefulness to the whole community
 - Discuss how to improve project management by the way we think about (and use) EVMS data and information

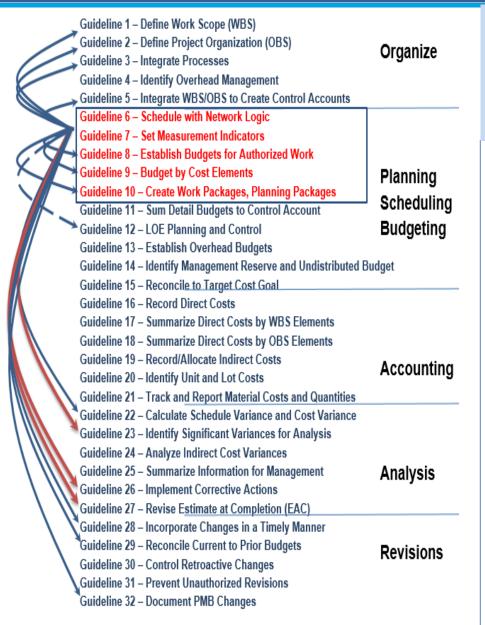
Roadside Assist Visit (RSAV)



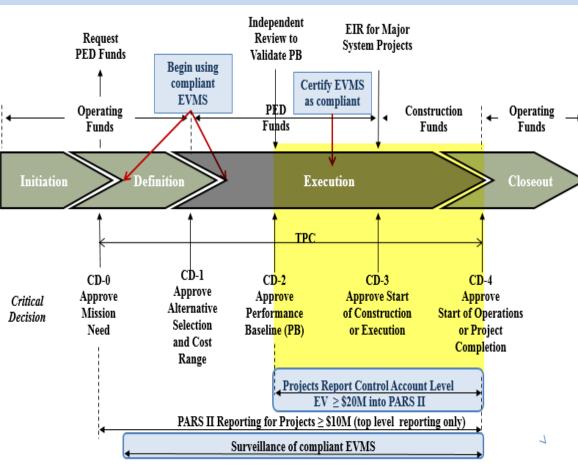
- Focus on EVMSIH Planning, Scheduling, & Budgeting
 - Topics
 - Techniques
 - Quality Checks
- Share Automated Test Results
- Opportunity to Discuss Site and Contractor Questions

Integrated EVM / PM Acquisition Lifecycle





EVM is Integral to DOE's PM Philosophy from CD-0 to CD-4



Typical DOE Acquisition Management System for Line Item Capital Asset Projects

Appearing at an RSAV Near You!







CNS/UCOR (3/7/16)

★ CHBWV/FBP (4/4/16)

★ WIPP/NWP (7/21/16)

RL/ORP (8/8/16)

CNS/Pantex (10/17/16)

☆ SPRO/FPO (10/19/16)

☆ LLNL/LLNS (TBD)

☆ INL/BEA (TBD)

 $\stackrel{\wedge}{\sim}$ SNL/Sandia (TBD)



- RSAV
- Teaming with EFCOG
- Webinars
- Newsletters
- Rolodex of Project Controls Federal and Contractor POCs
- And last but not least, Project Controls Workshops
 - Spring Project Management Workshops (Day 3)
 - Fall Integrated Program Management Workshop (DOE Track)



FY17 EVMS Strategic Plan



- Transparency of Data Analysis via Monthly PARS II (Central Data Repository)
 - Visible to Individual Contractors
 - We see what they see...and...They see what we see!
 - Allows contractors to take the initiative to course correct before DOE steps in
- Opens Door for true and effective Self-Governance
 - Reduced Government Oversight
 - Puts the contractual EVMS compliance oversight back on the Contractor

In Summary



- DOE approach serves as a consistent, automated review standard
 - Minimizes differing opinions of the reviewer
 - Streamlines assessment from event-driven to monthly; from behind closed doors by assessors to transparency
- Based on minimum expectations
- Excellent basis for self-governance
- Establishes a basis for reciprocity expectations
- Allows for flexibility for other CFAs to supplement for Agency-specific areas of concern
- Benefits the Entire EVMS Community
 - Mandatory in DOE; Recommended/Shared with CAIWG, PARCA

DOE PM Website

Slide 45

http://www.energy.gov/projectmanagement/earned-value-management

FARNED VALUE MANAGEMENT

Project Management		
Earned Value Management		
EVMS Guidance		
EVM SMEs		
Training		
Glossary of Terms & Acronyms		
Career Development (PMCDP)		
Policy Development		
Information Systems		



The mission of the DOE Earned Value Management website is to educate and train on theory and practice of Earned Value Management, and use it as an integrated Project Management process.

Earned Value Management (EVM) is a systematic approach to the integration and measurement of cost, schedule, and technical (scope) accomplishments on a project or task. It provides both the government and contractors the ability to examine detailed schedule information, critical program and technical milestones, and cost data.

- · Integrates scope, cost, and schedule, with risk management
- · Allows objective assessment and quantification of current project performance
- · Helps predict future performance based on trends

DOE INITIATIVE TO IMPROVE INTEGRATION OF EVM AND PM

- DOE EVMS Survey Results Report
- EVM/PM Integration Improvement Recommendation Report

KEY RESOURCES



PMCDP



EVMS



🎙 PARS IIe



FPD Resource Center



PM Newsletter



Forms and Templates