

Data Driven Analytics - Key to Effective and Efficient EVMS within DOE and Contractor Self-Governance

how we use and trust the data and the processes behind them



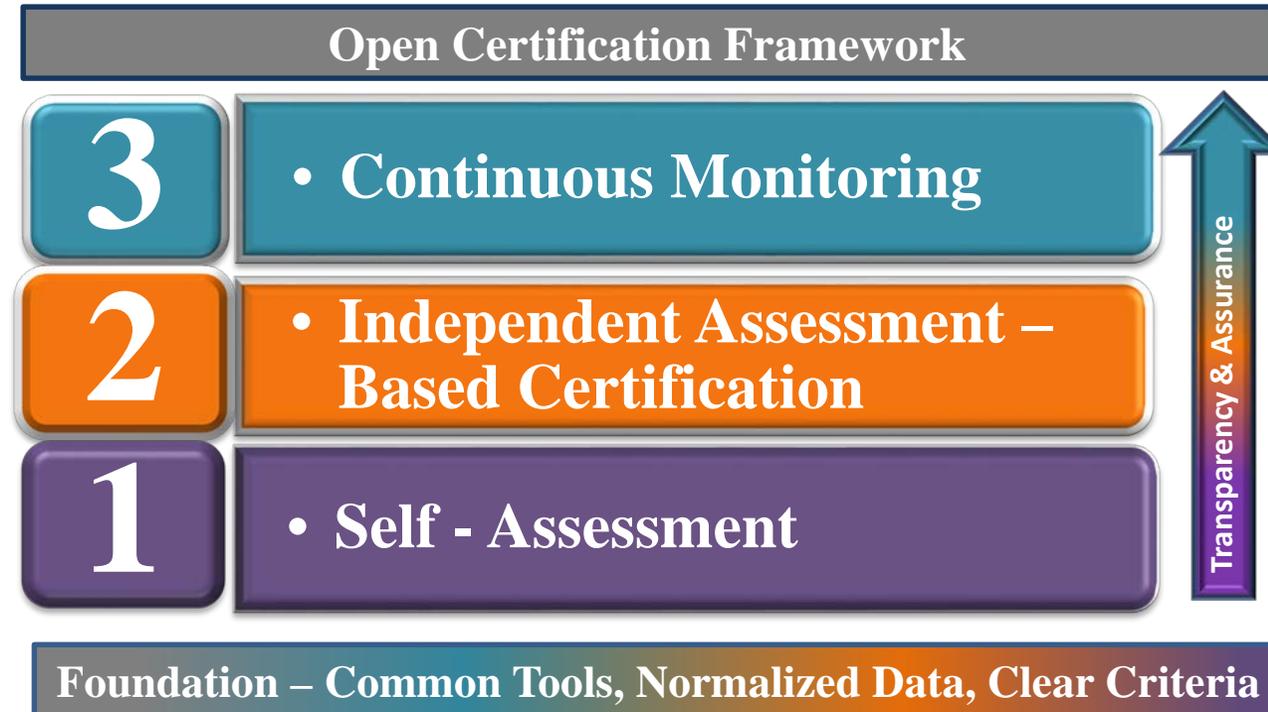
Melvin Frank
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Office of Project Management (PM)
August 29, 2018



- **Contractor System – Reflect how they do business**
- **Self Governance (aka Internal Controls) – Team Sport**
- **Discipline – to a Standard**
- **Objective vice Subjective – Eliminate Personal Interpretive Preference**

- **Reliable and Credible Data**
- **Rearview to Forward Looking**

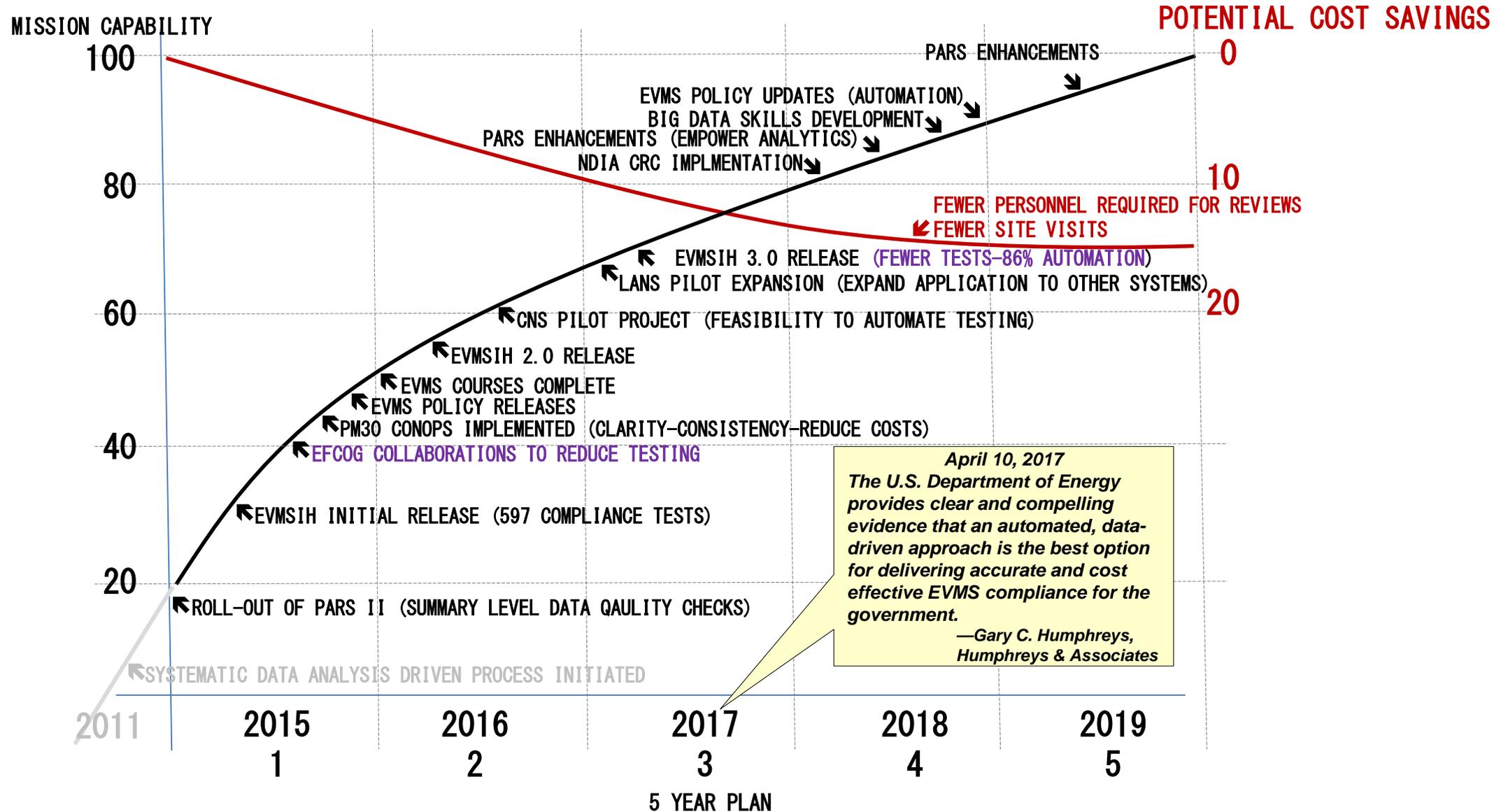
- **Effective and Efficient**
- **Position for Success**
- **PM Excellence**



- **Level One (Self-Assessment):** Requires the release and publication of due diligent self-assessment, against EVMS guidelines.
- **Level Two (Attestation):** Requires the release data and publication of available results of an assessment carried out by an independent third party based on EVMS guidelines.
- **Level Three (Ongoing Monitoring):** Requires the release and publication of results related to EVMS guidelines.

The increase in Transparency and Assurance is based from the foundation of using common tools to evaluate normalized data against clear criteria.

PM-30 Roadmap





EVMS Compliance Review SOP (ECRSOP)

www.energy.gov/projectmanagement/services-0/earned-value-management

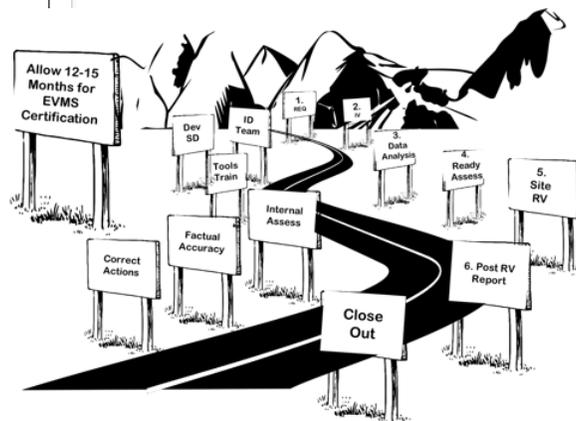
**Earned Value Management Systems
Compliance Review
Standard Operating Procedure
(ECRSOP)**



Issued by
Office of Project Management (PM)
Project Controls Division

DOE-PM-SOP-04-2018

August 23, 2018



Phase	Purpose
1. Need Determination	Identify need and resources to conduct an EVMS Compliance Review
2. Initial Visit (IV)	A PM-30 visit to contractors requiring an initial EVMS certification credentials to discuss the DOE Certification Review (CR) process, set review expectations among the stakeholders, and identify potential concerns with the contractor's EVMS processes and procedures and areas of non-compliance already observed.
3. Data Analysis (DA)	An initial assessment of the EVMS allowing the contractor to demonstrate the operation of the system.
4. Readiness Assessment (RA)	Determines the readiness of the contractor's EVMS for continuation of the DOE EVMS compliance process via data analysis results. This may include a Readiness Assist visit.
5. On-Site Preparation and Review	Conduct final pre-visit assessments and preparations, proceed on-site to commence the formal EVMS compliance review which concludes with a final exit brief to the contractor.
6. Post Review and Closeout	Documents the results of the contractor's EVMS compliance review, issue findings, monitors contractor Corrective Action Management Plan, and conducts final closeout which includes a PM-1 memorandum to the CO.

**EVMS COMPLIANCE REVIEW
STANDARD OPERATING PROCEDURE
(ECRSOP) – APPENDIX A:
COMPLIANCE ASSESSMENT
GUIDANCE (CAG)**



Issued by:
Department of Energy (DOE)
Office of Project Management (PM)
Project Controls Division

August 23, 2018

CLEAR CRITERIA

DOE PM-30 EVMS CROSS REFERENCE CHECKLIST (August 2018)			Page 1 of 4
An assessment of EIA-748 EVMS compliance requires the contractor to complete the following matrix that cross references provisions of the EVMS Description to EIA-748 Guidelines and Attributes. A contractor may elect to keep the EVMS Description general and rely on cross-referencing to internal procedures or policy manuals for a discussion of the operational details. In this case, the procedures and/or other documentation are to be referenced in, and considered a part of, the EVMS Description. All applicable documentation associated with the EVMS should be considered and recorded in this Cross Reference Checklist (CRC).			
Contractor Name			
Contractor Location			
EVMS Description Date and Revision No.			
EIA-748 AREA, GUIDELINE, AND ATTRIBUTE	INTENT MET?	EVMS DESCRIPTION REFERENCES (INCLUDE PAGE, SECTION AND PARAGRAPH NUMBERS WITH EXTRACT)	
	YES NO		
I. ORGANIZATION			
Guideline 1 – Define Work Scope (WBS) Protocol			
EXAMPLE:			
1. Is the product-oriented WBS used for a given project extended to the control account level as a minimum?	<input checked="" type="checkbox"/>	Page 32, Section 2.2.2 WBS Development: Paragraph 1. "The WBS is product and/or deliverable-oriented division of project work scope. There is only one WBS for each project, making each project specific WBS unique to that project." Paragraph 2. "For authorized work scope, the WBS should extend to the control account, work package and planning package levels, as each control account, work package, and planning package must be distinguishable from one another."	
1. Is the product-oriented WBS used for a given project extended to the control account level as a minimum?	<input type="checkbox"/>		
2. Does the WBS include all authorized project work and any revisions resulting from authorized changes and modifications?	<input type="checkbox"/>		
3. Are all WBS elements specified for external reporting?	<input type="checkbox"/>		
4. Is the WBS arranged in a hierarchy and constructed to allow for clear and logical groupings, including identification of subcontractors?	<input type="checkbox"/>		
Guideline 2 – Define Project Organization (OBS) Protocol			
1. Are all authorized tasks assigned to identified organizational elements?	<input type="checkbox"/>		



EVMS Compliance Review SOP (ECRSOP)

A	B	C	D	E	F	G	H	I	J	K	
1	Guideline & Schedule with Network Logic Protocol										
2	Guideline	Attribute	NDIA Intent Guide Reference	Test Method	Test ID	Frequency	X-Value	Y - Value	Artifact 1	Artifact 2	Threshold
3		1. Does the IMS reflect all authorized, time-phased discrete work to be accomplished, including details for any significant subcontracted effort and High Dollar Value (HDV) materials/ critical items that could affect the critical path (CP) of the IMS?	Pages 10-11, Typical Attributes: "The schedule reflects all the time-phased discrete work to be accomplished that is traceable to the WBS and the Statement of Work. For certain material activities, including production related activities, not all discrete activities are planned in the integrated master schedule as they are managed through an MRP or other material management system." Page 11, Typical Attributes: "Significant interdependencies should be defined at a consistent level of detail to support development of a critical path. The minimum level linkage is at the work package and planning package level. The schedule should be designed for effective integrated program management purposes"	Manual	6.1.1	Monthly	X = # of High Dollar Value/Critical Item (HDV/CI) materials listed in the HDV/CI material items list that are not found in the IMS	Y= Total # of HDV/CI material items	HDV/CI Material Items List	IMS Flat File	>0%
4		2. Does the current schedule provide actual status including forecast start and completion dates consistent with the month end status (data) date for all discrete authorized work?	Page 10, intent: "There is a clear definition of what constitutes commencement and completion of each work package and planning package (or lower-level task/activity)." Page 11, Typical Attributes: "The baseline schedule is the basis for measuring performance."	Automated	6.1.2	Monthly	X = Count of incomplete discrete WPs, PPs, and SLPPs found in the EVMS cost tool code that are not found in the IMS code	Y = Total count of all incomplete discrete WPs, PPs, and SLPPs found in the EVMS cost tool	Cost Tool	IMS Flat File	>0%
5				Automated	6.2.1	Monthly	X = # of activities with % physical percent complete equal to 100% having no actual finish date in the forecast IMS	Y = # of activities in the forecast IMS	Forecast IMS		>0%
				Automated	6.2.2	Monthly	X = # of activities identified as stasued out of sequence in the forecast IMS	Y = # of activities in the forecast IMS	Forecast IMS		>0%
				Automated	6.2.3	Monthly	X = # of activities missing actual start dates with physical percent complete >0% in the IMS	Y = # of activities in the forecast IMS	Forecast IMS		>0%

A	B	C	D	E	F	
1	FILE NAME	IPMR_FORMAT1				
	DESCRIPTION	IPMR Format 1 data, as defined in IPMR DID, at the IPMR reporting level only. THIS FORMAT IS USED IN NUMBER OF THE EVMS IH 3.0 AUTOMATED TESTS. NOTE: if data is not submitted in this format, artifact delivery will still be required. This is separate from data in COST.csv and should be compared back to it.				
2	REQUIRED DATA	Contractual-established IPMR Reporting level data				
3	OPTIONAL DATA	Control Account (CA) level data				
4	PRIMARY KEY	PARSID, CPP_STATUS_DATE, WBS				
5	RELATIONSHIPS	- WBS = WORK_BREAKDOWN_STRUCTURE.WBS				
6						
7						
8	EXCEL COLUMN	Requested Field Name	CNS EVCSA Target	Description	Data Type	REQUIRED
9	A	PARSID		PARSID as assigned by the PARSIIe System to a project for which data is submitted	INTEGER (6)	YES
10	B	CPP_STATUS_DATE		Contractor "Data As Of Date"	DATE (10)	YES
11	C	WBS		WBS element at the IPMR reporting level. Must exist in WBS file	VARCHAR (36)	YES
12	D	INC_BCWS	CPRFORMAT1.PER_S	Current Period BCWS for WBS element	NUMBER (#.00)	YES
13	E	INC_BCWP	CPRFORMAT1.PER_P	Current Period BCWP for WBS element	NUMBER (#.00)	YES
14	F	INC_ACWP	CPRFORMAT1.PER_A	Current Period ACWP for WBS element	NUMBER (#.00)	YES

NORMALIZED DATA



Compliance Scoring at Attribute Level

Guideline 1 - Define Work Scope (WBS) Protocol														
Guideline	Attribute	Weighting Factor	Maturity Value	Weighted Score	NDIA Intent Guide Reference	Test Method	Test ID	Frequency	X-Value	Y-Value	Artifact 1	Artifact 2	Threshold	Result
1	1. PRODUCT ORIENTED. Is the product-oriented WBS used for a given project extended to the control account level as a minimum?	5.00	0.75	3.75	Page 4, Management Value: "The WBS is a product-oriented division of project tasks depicting the breakdown of work scope for work authorization, tracking, and reporting purposes that facilitates traceability and provides a control framework for integrated program management."	Manual	1.1.1	Initial, and when customer change/modifications are implemented	Compare the product/deliverables listed in the PEP (and other scope documents) and the WBS. Is there product-oriented groupings of project scope elements in the WBS dictionary to organize and subdivide the total work scope as defined in the PEP (and other scope documents). Does the WBS define the product/deliverables?		PEP (and other scope documents, including the Concept Design Report)	WBS Dictionary	Pass/Fail	0
						Manual	1.1.2	Initial, and when customer change/modifications are implemented	X = Total # of incomplete CA/SLPPs where WBS Dictionary scope statement does not match WAD scope statement content	Y = Total # of incomplete CA/SLPP	WBS Dictionary	WAD/Scope Statement content	≥5%	1
	2. ALL AUTHORIZED WORK USING ONE WBS. Does the WBS include all authorized project work and any revisions resulting from authorized changes and modifications?	3.00	1.00	3.00	Page 4, Typical Attributes: "Only one WBS is used per project and it contains all project work, including revisions for authorized changes and modifications." Page 4, Typical Attributes: "The WBS elements should collectively provide a complete definition of work scope requirements".	Manual	1.2.1	Initial, and when customer change/modifications are implemented	X = Count of differences between CA WBS BAC values listed in the RAM and CA WBS BAC values listed in the IPMR/CPR F1	Y = Total count of CA WBS BAC values listed in the RAM	Dollarized RAM	IPMR/CPR F1	>0%	1
						Manual	1.2.2	Initial, and Semi-Annual (6 mo.) to align with horizon planning increments.	X = Compare # of WBS elements and descriptions provided by CAM during discussions that are different from the WBS Dictionary.		Control Account Plan (CAP)	WBS Dictionary	Pass/Fail	1
						Automated	1.2.3	Monthly	X = Total # of incomplete CA/WIP/PSLPPs where WBS Dictionary Code does not match IMS WBS code	Y = Total # of incomplete CA/WIP/PSLPPs WBS codes	WBS Dictionary	Baseline Schedule	>0%	1
	3. REPORTING REQUIREMENTS. Are all WBS elements specified for external reporting?	1.00	1.00	1.00	Page 4, Typical Attributes: "The WBS identifies all WBS elements specified for external reporting."	Manual	1.3.1	Initial, and when customer change/modifications are implemented	X = Count of differences between the Contractor Project Performance (CPP)/PMR reporting upload requirements and actual uploads provided.		CPP Upload Requirements		Pass/Fail	1
4. DESCRIPTION OF WORK CONTENT. Is the WBS arranged in a hierarchy and constructed to allow for clear and logical groupings, including identification of subcontractors?	3.00	0.00	0.00	Page 4, Intent: "A WBS is a direct representation of the work scope in the project, documenting the hierarchy and description of the tasks to be performed and their relationship to the product deliverables." Earned Value Management System Guideline Scalability Guide, Process 8: Managing Subcontracted Work Effort, Page 46: "Often, a significant portion of a project is performed by subcontractors. Subcontract arrangements are generally with other companies but may also include other organizational entities within the prime	Manual	1.4.1	Initial, and Semi-Annual (6 mo.) to align with horizon planning increments.	X = Examine the WBS. During CAM discussions determine if product/deliverables have been further decomposed into logical parent and child relationships?		PEP (and other scope documents, including the Concept Design Report)	WBS Dictionary	Pass/Fail	0	
					Manual	1.4.2	Initial, and Semi-Annual (6 mo.) to align with horizon planning increments.	X = Examine the WBS. During CAM interviews determine if project scope elements in the WBS dictionary being performed by a HDWCI subcontractor, exclusive of the prime contractor, are separately identified.		WBS Dictionary	HDWCI Sub-contractor Listings	Pass/Fail	0	
SUBTOTAL WBS PROTOCOL		12.00		7.75										

$$=SUM((O3*0.25)+(O4*0.75))$$

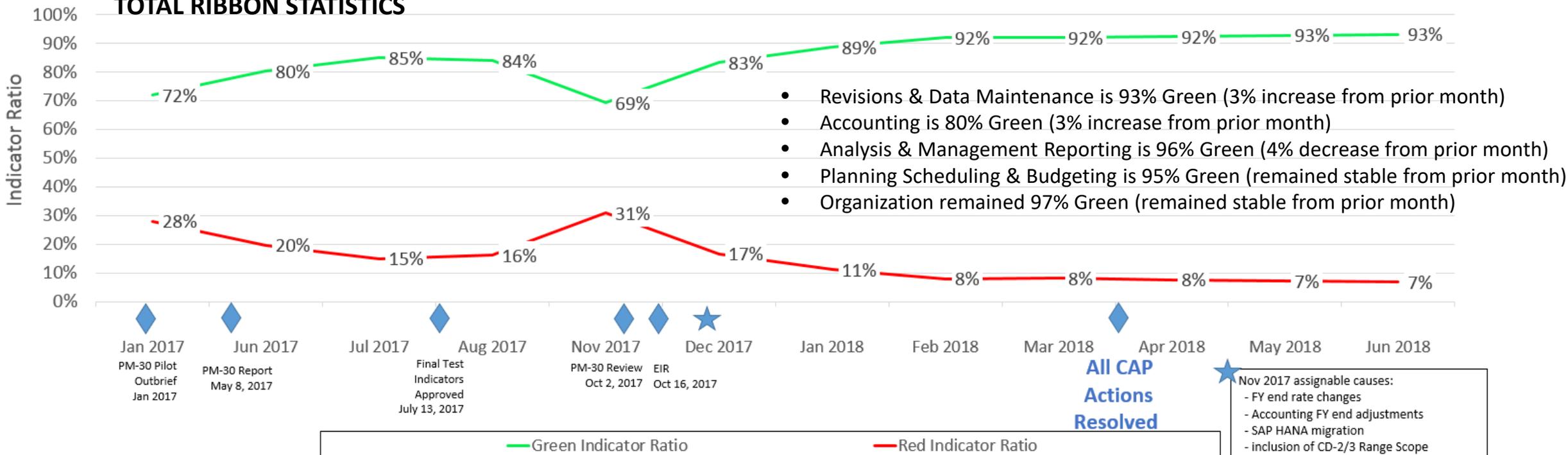
- Completed the Certification Process for CNS
- Focused approach using a data driven, automated analysis approach
- Entered into a Self-Governance model



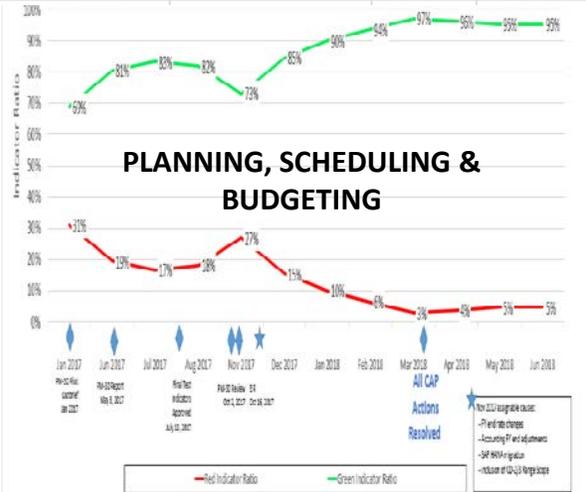
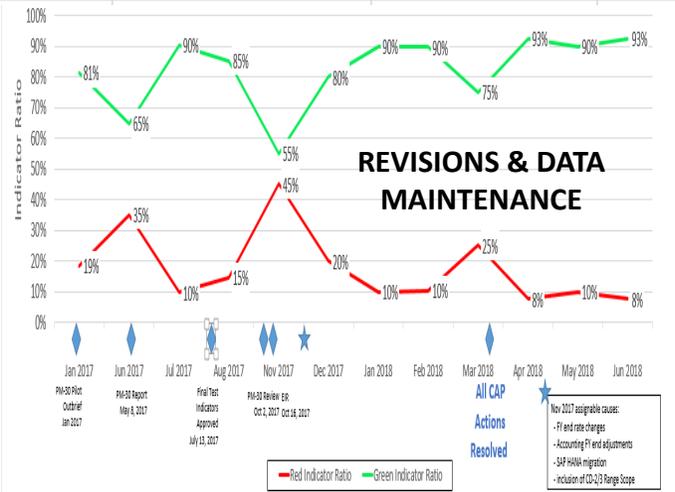
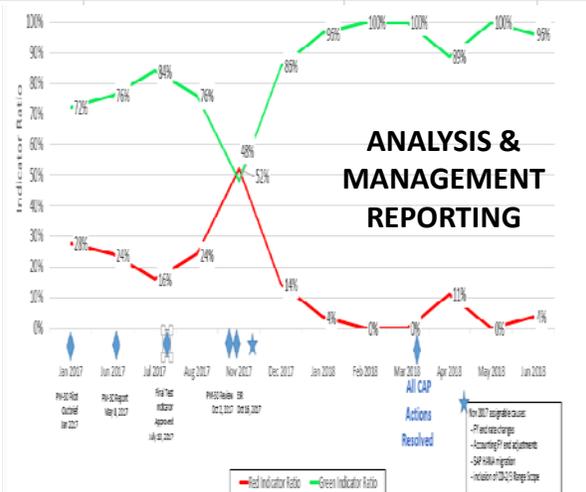
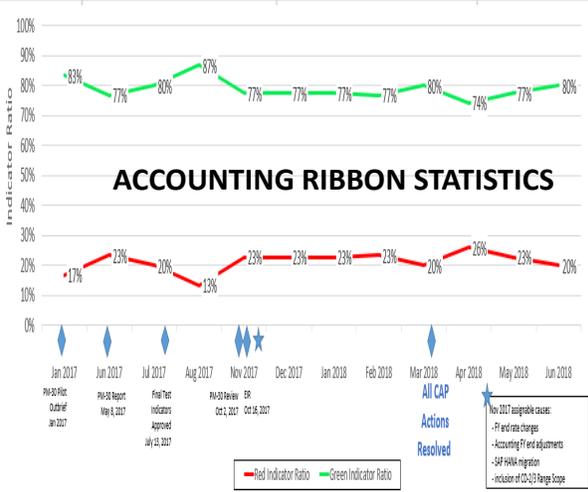


Effective Self Governance Results

TOTAL RIBBON STATISTICS



Nov 2017 assignable causes:
 - FY end rate changes
 - Accounting FY end adjustments
 - SAP HANA migration
 - inclusion of CD-2/3 Range Scope





- **CNS Pilot – great success in contractor/government partnership**
 - 597 Tests to 197 Tests for EIA compliance.
 - Better use of Automation
 - Lessons learned moving to update PARS
- **Items discovered in practice...**
 - Improved Schedule Focus
 - Zero Budget Activities
 - ETC Forecast Activities
 - Schedule Visibility Tasks (Internal vs. External)
 - Decreased EVMS Focus
 - Divorces Budget/Cost Integration
 - Limits PMB Utility



- DOE Order 413.3 Guides
 - Update of EVMS Guide (413.3-10A to 413.3-10B)
 - Development of Planning and Scheduling Amplification Guide (413.3-X)
- Next Round of Roadside Assist Visits (RSAV) Initiated Summer 2018
- Upcoming Compliance Reviews
 - Nuclear Waste Partnership (NWP) – Waste Isolation Pilot Plant
 - Fluor BWXT Portsmouth (FBP) – Portsmouth Gaseous Diffusion Plant
 - Fluor Federal Petroleum Operations (FFPO) – Strategic Petroleum Reserve
 - Triad National Security (TRIAD) – Los Alamos National Laboratory
 - Bechtel National, Inc. (BNI) – Waste Treatment Plant
 - Mission Support and Test Services (MSTS) – Nevada National Security Site
 - And many more...

THE FOUR FUNDAMENTAL FORCES THAT GOVERN THE BEHAVIOR OF EIA-748 COMPLIANCE



Slide 13

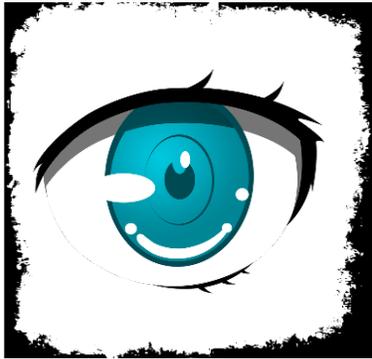
1. Culture



**Lisa
Cazalet**

Los Alamos
National
Laboratory

2. Clarity



**Lisa
Frank**

Consolidated
Nuclear
Security

3. Cost



**Bob
Sudermann**

Fluor
Government
Group

4. Collaboration



**Greg
Smith**

Humphreys &
Associates

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Project Controls Division (PM-30)
Office of Project Management (PM)
US Department of Energy (DOE)**

**Energy Facility Contractor Group (EFCOG)
Project Delivery Group (PDG)
Project Controls Subgroup (PCSG)**