

EV in a War Zone:

Understanding Earned Value & How to apply it.



Kandahar International Airport, Kandahar, Afghanistan

2017 CONSTRUCTION CPM CONFERENCE
WED33, 2PM - SPEAKER: ERIK TUMA, P.S.P

GRANITETM

Personal Introduction

- I'm a Beaver
- 13 ½ years of EVM experience
- Have supported Project Control delivery/training around the world
- Applied EVM principles on a diverse set of work
- Beautiful wife and four kids

Disclaimer

- The statements made in this technical presentation are based on our current knowledge of the tools/processes as well as personal experiences and do not necessarily represent the views of Granite Construction Co.
- Statements should not be construed to be an official guidance, but are intended to be the sharing of technical and user knowledge gained as I've applied these management techniques and practices on projects.
- You need to make your own judgments as to the application of our shared ideas in your own, unique environment.
- **Myself nor Granite Construction are responsible for injuries caused by the alternate delivery methods of gift cards during this presentation.**

Agenda

- The problem with Earned Value Management
- Understand – Application – Practice - Benefits
- Case Study: Earned Value in a War Zone

PROMISE: In a first for Earned Value Management presentations....there will be NO use of abbreviations or complicated S-Curves!

The problem w/ Earned Value Management...



...there isn't a problem with the Discipline itself, but a problem with how we implement on our jobs.

UNDERSTAND

Earned Value Management System

A standard governed by ANSI 748 in which a disciplined environment is created to ensure the highest standards of EVM are consistently applied to a Project.

Earned Value Management

A discipline which uses the integration of a Projects Scope, Cost, and Schedule to produce a factual unbiased analysis of the health of a project.

Earned Value

A Variable used to assess how much work has been completed on a budgeted activity.

Increases **CAPABILITY** to measure work in progress and analyze variances so that you have a greater **ABILITY** to implement corrective action

UNDERSTAND

BANK ACCOUNT ILLUSTRATION

	Monthly Budget
Car Payment	\$200.00
Mortgage	\$1,000.00
Weater	\$100.00
Electricity	\$100.00
Food	\$300.00
Entertainment	\$300.00
	\$2,000.00

Half way through the month you've spent \$1,000.00, and planned to have paid 3 bills. How are you doing?

UNDERSTAND

BANK ACCOUNT ILLUSTRATION

- Now we are three weeks into the month.
- When we look at our account, we've spent \$1,500
- Surprise! We get \$1,000 bonus for giving a EVM presentation at a leading P&S Conference and now show 50% spent.
- How are we doing?

UNDERSTAND

BANK ACCOUNT ILLUSTRATION

- Month is now over and we look at our account.
 - Budget was \$3,000
 - Spent was \$2,250
- Our Husband/Wife asks us how we did...

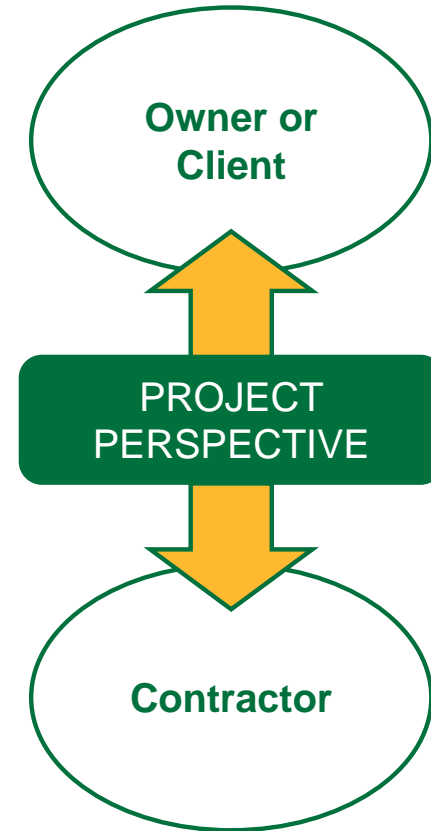
APPLICATION

An ASSESSMENT needs to be made to identify how your project will benefit.

Stakeholder support...Contract Type...Scope...

Department of Defense Guidance: “EVM is discouraged on firm-fixed price, level of effort, and time and materials efforts....regardless of dollar value.”

This makes sense from the Clients point of view...but does it from the contractors?



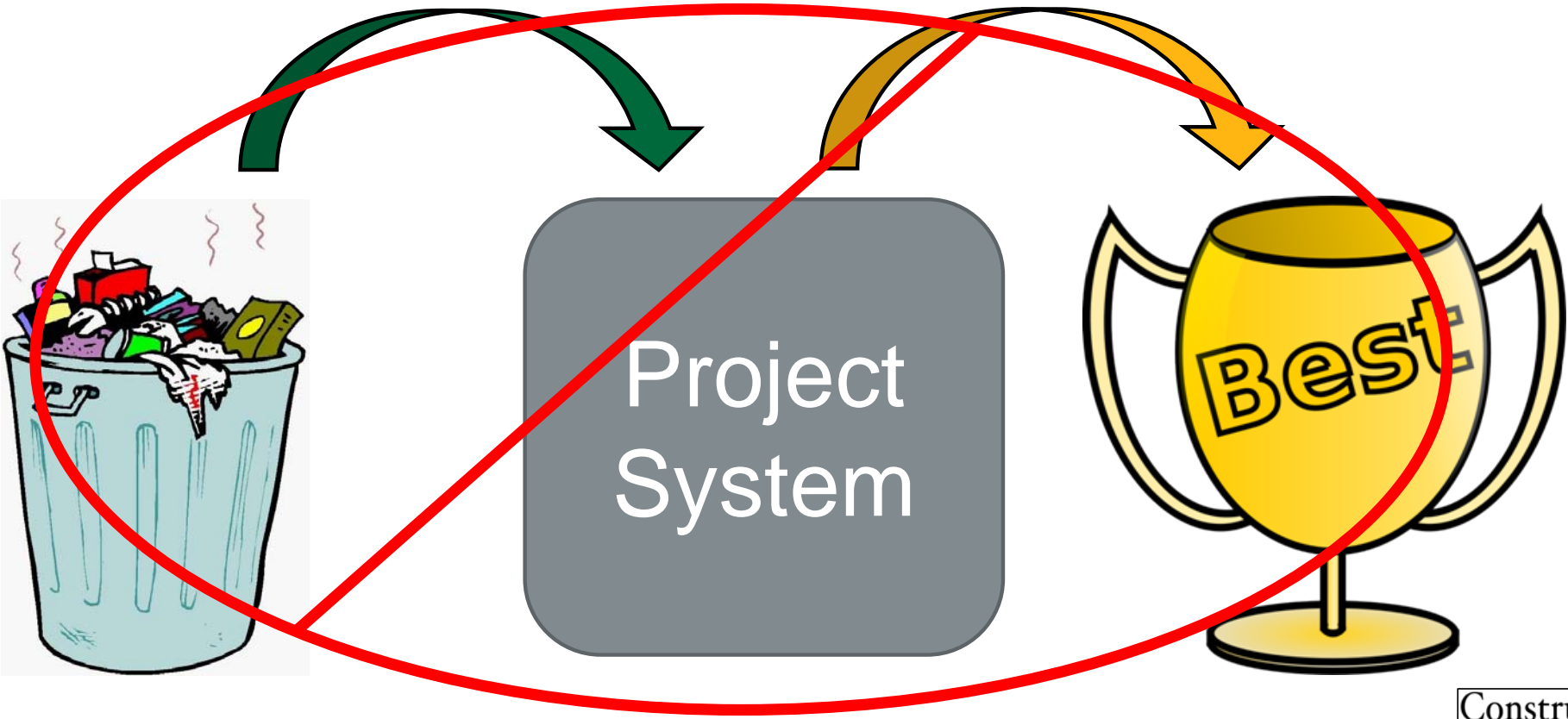
APPLICATION

The 32 ANSI 748 Guidelines....which to apply?

Organization	
1	Define WBS
2	Identify Organizations
3	Integrate Subsystems
4	Identify Overhead Control
5	Integrate WBS and OBS
Planning, Scheduling, and Budgeting	
6	Schedule Work
7	Identify Products / Milestones
8	Set Time-Phased Budget
9	Significant Cost Elements
10	Discrete Work Packages
11	Summary / Planning Packages
12	Identify LOE Activities
13	Set Overhead for Organizations
14	Identify Management Reserve and Undistributed Budget
15	Target Costs and Budgets

Accounting	
16	Record Direct Costs
17	Summarize into WBS
18	Summarize into OBS
19	Record Indirect Costs
20	Identify Equivalent / Lot Costs
21	Material Accounting
Analysis and Management Reports	
22	Periodic Cost Account Sums
23	Determine Variances
24	Budget / Actual Indirects
25	Summarize Data and Variances
26	Manager Action Plans
27	EAC Revision
Revisions and Data Maintenance	
28	Incorporate Change
29	Reconcile Budgets
30	Control Retroactive Change
31	Only Authorized Change
32	Document Performance Measurement Baseline Changes

PRACTICE



BENEFITS

- De-Risk
- No Surprises
- Gives you the Ability to Mitigate Challenges
- Everyone's a Hero



Case Study: EV in a War Zone

Location / Timing

Kuwait – 10 Sites
Afghanistan – 72-90 Sites
Oman – 2 Sites

Period of Involvement – 2009
through 2013

Afghanistan Surge (30-40K) –
2009/2010

Iraq Drawdown – 2010/2011



Scope

OPERATIONS & MAINTENANCE SUPPORT



LOGISCTIC SUPPORT



BASE CONSTRUCTION

31 Dec



15 Feb



31 Mar



PC Facts

Project Facts	
Period of Performance:	One Base year plus 5 Option Years
Order of Magnitude:	At the height of work, \$1.5 Billion USD / year, 3 Team members with multiple subcontractors. 16K man workforce throughout the world and approx. 1,000 Charge Codes per PoP.
Type of Work:	Logistic Support, Operations and Maintenance, and Construction
Where was work Performed:	Afghanistan, Kuwait, Oman
Project Controls Staff:	Staff of 24 FTE in the PMO which operated the tools, 84 FTE in the field to provide current Forecast input
Tools used:	<ul style="list-style-type: none">• Access Database to accept the 4 different type of Accounting system from Team members and subcontractors• Primavera P6 for scheduling and planning• Deltek Cobra for Earned Value and Cost Management reporting

Additional Client Cost Management Requirements

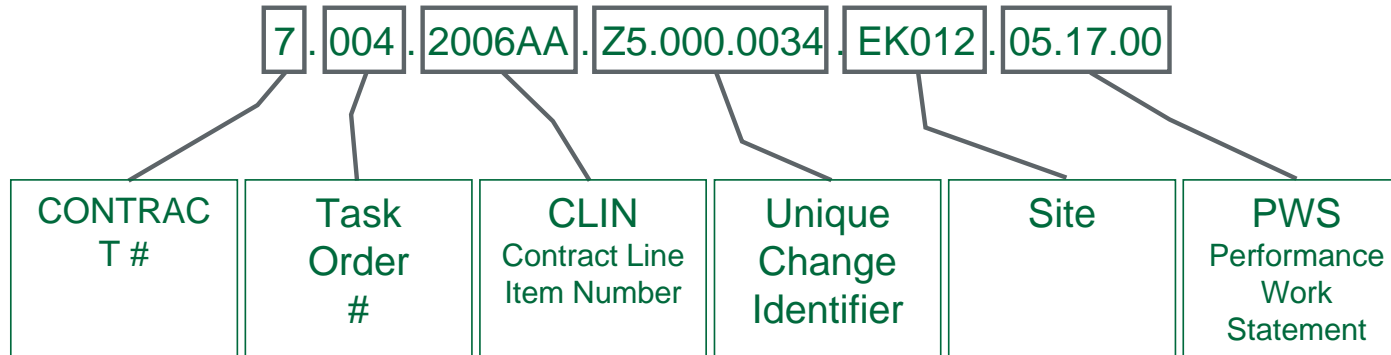
- Client requirements were to use ANSI 748 EVMS – we assessed and negotiated a EVM method to report on this Cost Reimbursable plus Award Fee Contract
- Bi-Weekly reporting
- Report in Client requested Cost Report format

Additional Internal Cost Management Requirements

- Be able to report costs from different “Points of View” to support individual team member reporting requirements
- Track different types of Budgets depending on funding source and contract modification stage

All of this was achieved with no previous PC infrastructure

Define Work Breakdown Structure (1)



WBS Dictionary included 5,256 Base Scope Codes, 3,423 Discrete Change Order Codes through AFG Option Year 3

Allowed us to ensure all scope was covered, and to segregate “Change” work to prepare for Request for Equitable Adjustment proposals

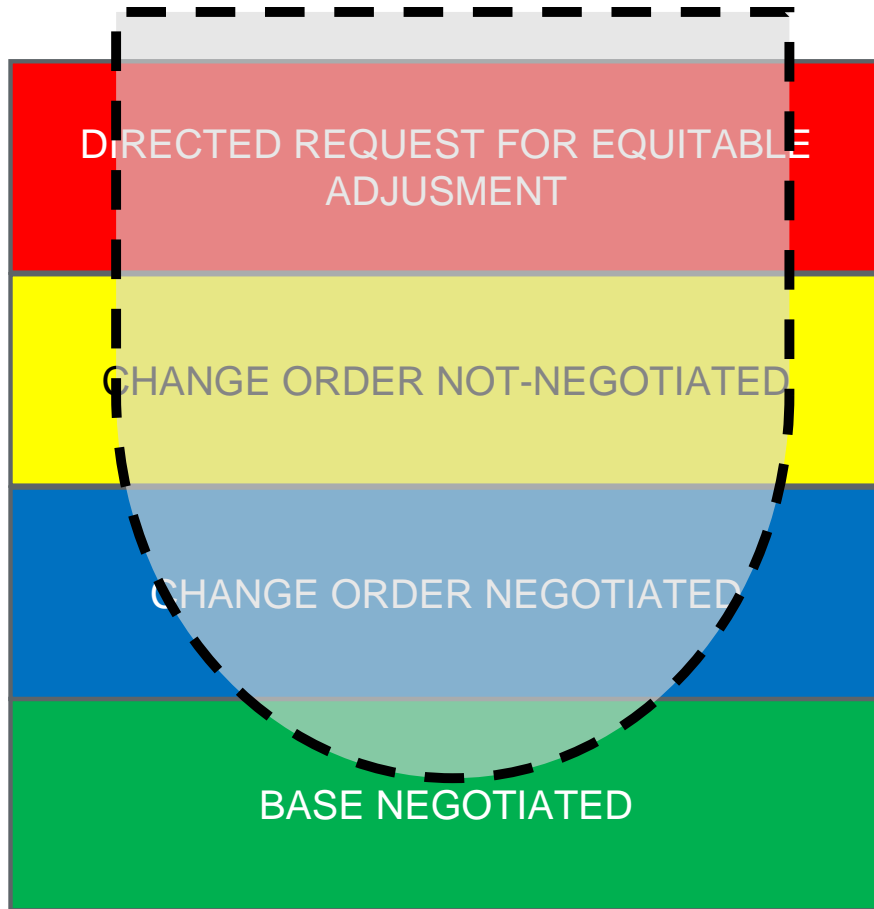
Also helped to segregate variances through the Bi-Weekly analysis

Analyze Significant Variances (23)

CONTRACT PERFORMANCE REPORT EXPLANATIONS AND PROBLEM ANALYSES									
Contractor: DynCorp International							4. REPORT PERIOD		
Task Order No: TD-004							a. FROM (YYYYMMDD) 2012/02/04		
Task Order Description: Afghanistan South AOR							b. TO (YYYYMMDD) 2012/02/17		
Site Code: BK001									
Site Description: Kandahar									
1006AA - Option Year 1									
	Scheduled (BCWS)	Performed (BCWP)	Actuals (ACWP)	Sched. Var. (\$)	Sched. Var. (%)	Sched. Index (SPI)	Cost Var. (\$)	Cost Var. (%)	Cost Index (CPI)
Current:	6,059,746	6,059,746	4,082,987	0	0%	1.00	1,976,759	33%	1.48
Cumulative:	82,746,483	82,746,483	53,375,887	0	0%	1.00	29,370,596	35%	1.55
	Total Budget (BAC)	Total Estimate (EAC)		Variance (\$)	Variance (%)		% Scheduled	% Complete	% Spent
At Complete:	192,758,928	119,813,649		72,945,279	38%		43%	43%	28%
<u>Explanation of Variance/Description of Problem:</u>									
<p>Not Included on MOD's: None Top 3 WBS Under-runs: 05.02.00 Facilities Management - \$36.7M Labor - \$36M: The decrease in labor at BK001 is caused by the significant and continuing lack of bed space on KAF. That single element has constrained staffing levels since the transition period and has yet to be addressed by the USG. In this particular PWS the staffing level is currently well below the authorized level required to perform the mission. Even when DI fills personnel requisitions, the lack of bed space contributes to the inability of DI to mobilize personnel into the KAF. Material - \$5.0M: The decrease is due to aggressive use of cross-leveling of materials originally proposed for commercial purchase. Subcontract - (\$5.3M): The increase in Subcontract is due to a management decision to subcontract out some services instead of self-perform. 07.01.00 Transportation - \$14.8M Labor - \$14M. The decrease in Labor is due to limited bed-space, promotions, transfers or demobilizations. As a higher number of personnel are being requisitioned, higher personnel levels are anticipated to be seen within a few months. 06.02.00 Class IV Yard - \$10.2M: Labor - \$10M. The decrease in Labor is due to limited bed-space in Kandahar Airfield. Personnel were reallocated to sites with available billeting that also had a greater need for the additional personnel. Top 3 WBS Over-runs 08.03.13 CSW Support - (\$3M): All cost types - (\$3M): The increase in all cost types is due to the identified need for a Contractor Supported Warehouse which was proposed and submitted; this will be part of a future REA. 05.02.00 Task Force Power Team (\$3M): All cost types - (\$3M): The increase in all cost types is due to requirements for a Task Force Power Team which was identified after the proposal was submitted, and will be included in a future REA. 08.99.00 MHE and Vehicle Leases - (\$1.9M): Equipment - (\$1.9M): The increase in equipment is due a lack of funding by the USG in the BAC; funds were not rolled into the budget. This is a temporary variance until the USG completely defines the base proposal.</p>									



Maintain Baseline & Reconcile Budgets (29)



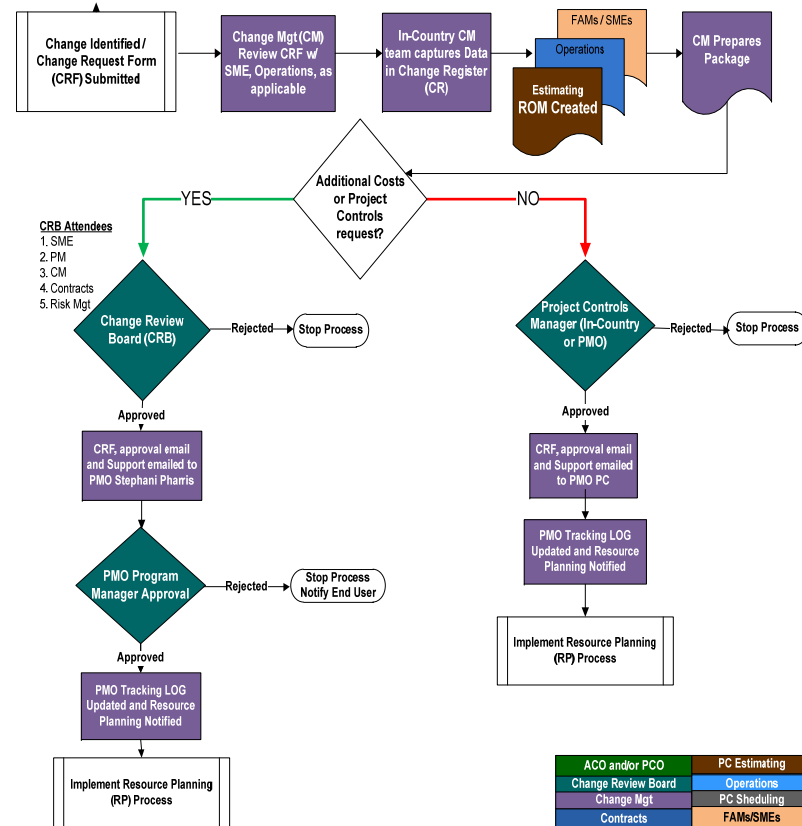
Building blocks of our working budget until...

The AFG Drawdown. Tracking and reconciliation of these buckets became even more important once the Afghanistan Drawdown began and work became de-scoped.

Prevent Unauthorized Revisions (31)

Established Cost Account Managers to monitor the work being performed

Once change was identified it flowed through the Change review process which included several gate approvals before eventually being sent to the Client and incorporated into Budgets.



Conclusion

- Understand-Application-Practice
- If Earned Value Management works w/ the Taliban breathing down your neck, it will work on your project.
- Questions??

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APPENDIX

