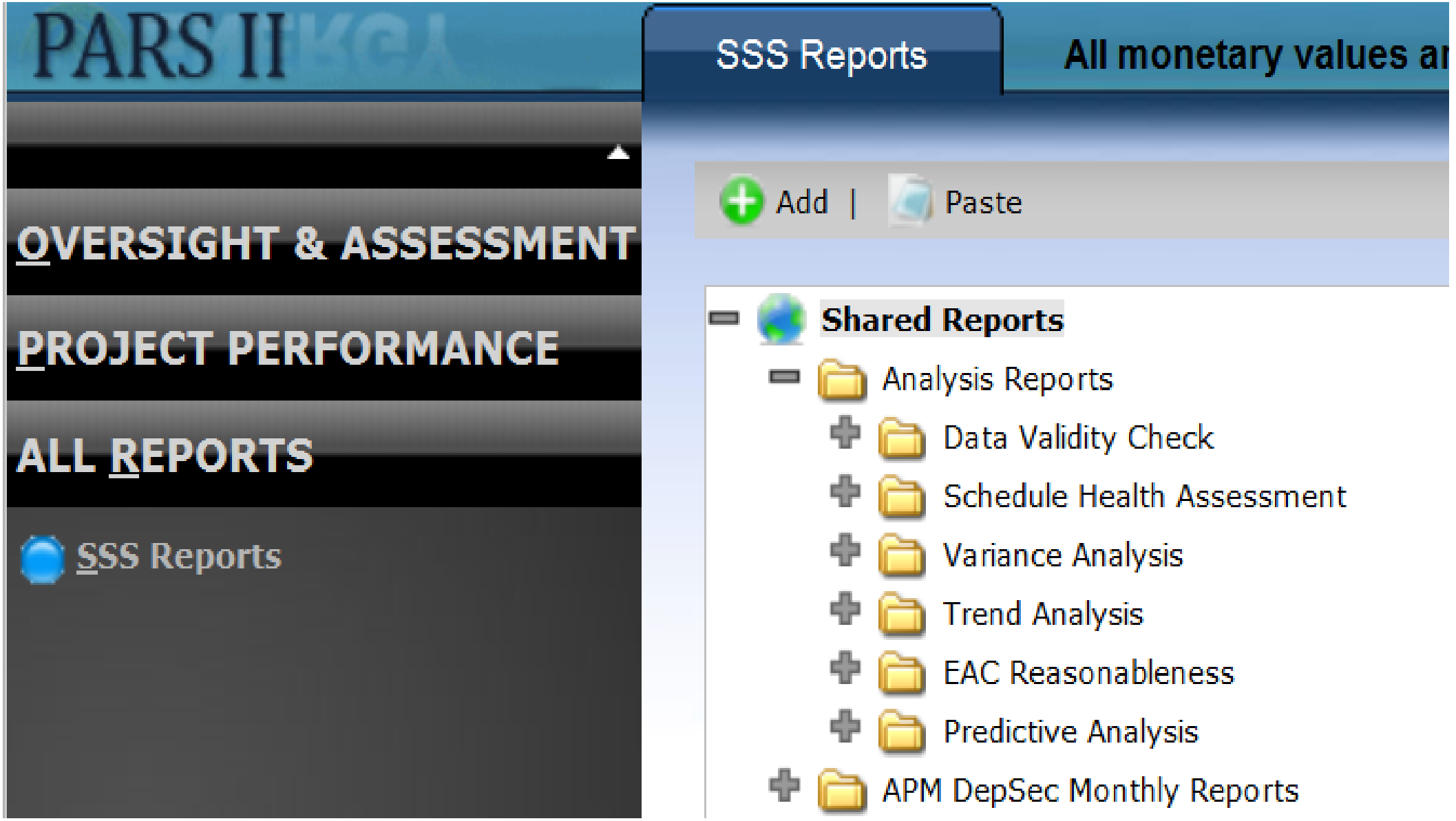
EVMS Training Snippet Library:
PARSII Analysis: Variance Reports

Office of Acquisition and Project Management (OAPM) MA-60
U. S. Department of Energy
July 2014

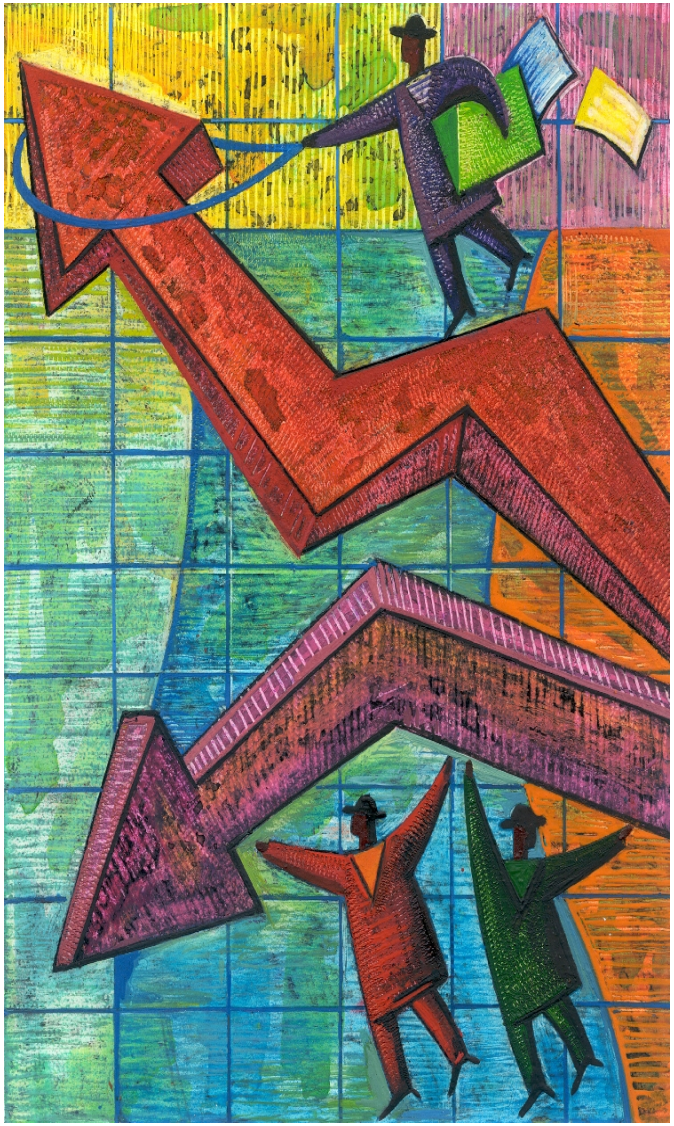
Analysis Reports – Project Analysis SOP



- **Analysis Reports**
  - Report uses further explained in OAPM's EVMS Project Analysis Standard Operating Procedure (EPASOP)
  - Variance Analysis Subfolder
    - EV Project Summary (6-Mo; PMB Level)
    - Performance Analysis (WBS Level)
    - Variance Analysis Cumulative (WBS Level)

Analyze Variances

- **After checking the data validity:**
  - Identify and investigate variances
  - Review cumulative variances, sorting by size
  - Also review current period variances to help spot growing concerns



EV Project Summary (6-Mo. PMB Level)

	06/30/2013	07/31/2013	08/31/2013	09/30/2013	10/31/2013	11/30/2013
Cumulative to Date						
BCWS	$308,711,525.47	$314,762,727.42	$319,214,046.64	$322,729,551.45	$326,163,634.34	$329,090,236.94
BCWP	$295,442,525.22	$299,853,203.16	$304,262,053.33	$307,420,381.95	$310,880,829.64	$313,276,777.34
ACWP	$289,597,741.89	$293,502,964.41	$297,439,927.32	$301,673,613.99	$304,527,645.07	$307,749,156.85
SV	($13,269,000.25)	($14,909,524.26)	($14,951,993.31)	($15,309,169.50)	($15,282,804.70)	($15,813,459.60)
SV%	-4.30%	-4.74%	-4.68%	-4.74%	-4.69%	-4.81%
SPI						
CV						
CV%						
CPI						
Current Period						
BCWS						
BCWP						
ACWP						
SV						
SV%						
SPI						
CV						
CV%						
CPI						
At Complete						
BAC						
EAC						
VAC						
VAC%						
ACI						
TCPI (To EAC)						
TCPI (To BAC)						
% Scheduled						
% Complete						
% Spent	84.95%	86.04%	87.18%	88.41%	89.14%	90.07%
IEAC						
Cum CPI	$334,157,360.29	$333,900,635.11	$333,511,945.90	$334,842,338.15	$334,630,299.02	$335,659,968.16
Cum SPI X Cum CPI	$336,158,634.77	$335,909,318.18	$335,284,590.81	$336,494,101.18	$336,110,136.10	$337,068,838.91
3 Period Moving Average	$331,685,736.08	$331,975,705.17	$331,135,067.59	$335,750,781.49	$335,250,104.21	$340,241,240.72

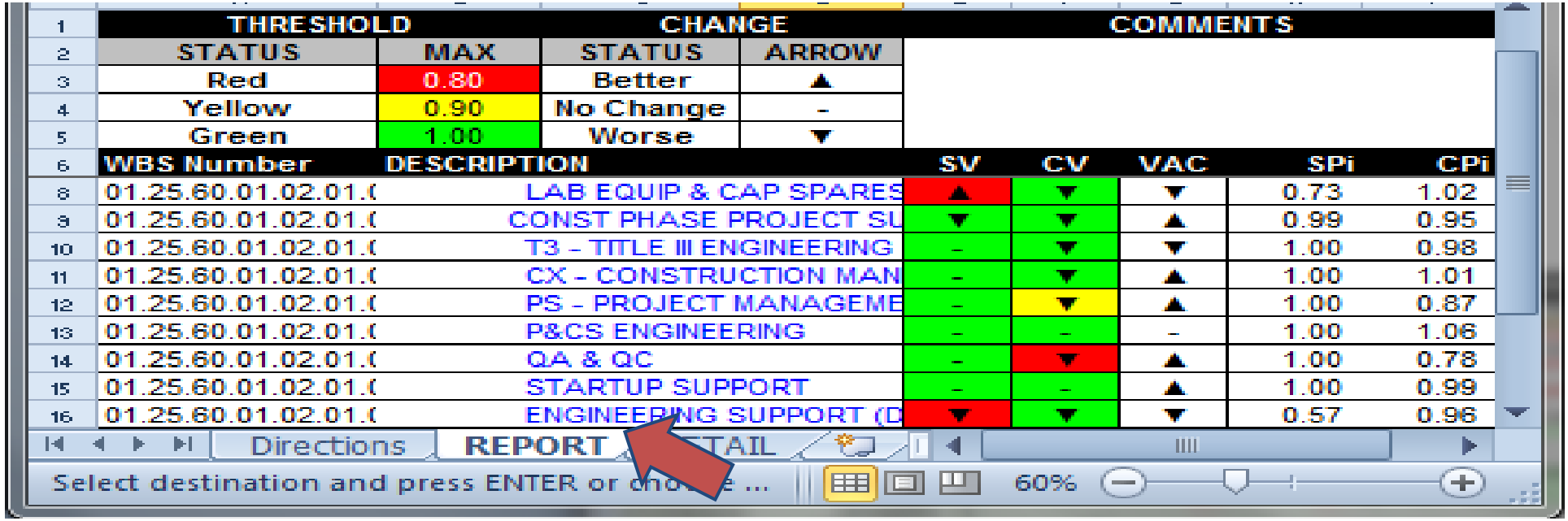
- **Shows Cumulative, Current, At Complete, and IEAC information at PMB Level for past 6 months**
- **Provides overall Project performance**
- **Provides helpful information at Variance Analysis Phase:**
  - Schedule and Cost Variances
  - Schedule and Cost Variance Percentages
  - Schedule and Cost Performance Indices
  - Variance at Completion Percentage

Performance Analysis (WBS Level)

	Current					Cumulative					At Complete		
DESCRIPTION	BCWS	BCWP	ACWP	SV	CV	BCWS	BCWP	ACWP	SV	CV	BAC	EAC	VAC
DA - DESIGN AUTHORITY & TECH SUPPORT	$324,713	$324,713	$344,745		($20,032)	$19,408,875	$19,408,875	$17,501,379		$1,907,497	$21,605,095	$23,119,989	($1,514,894)
PR - PERMITTING	$84,314	$57,355	$116,952	($26,959)	($59,597)	$7,692,473	$7,674,481	$7,235,594	($17,992)	$438,887	$8,039,240	$7,677,082	$362,157
OP - OPERATIONS													

- **Shows Current, Cumulative, and At Complete information at all WBS reporting levels**
- **Click on WBS Description blue hyperlink to see information presented in Chart format**
- **Advantage of this report is Excel Sort feature to view variances from largest to smallest, positive to negative**
- **Note: This is a partial view of the full report**

Variance Analysis Cumulative (WBS Level)

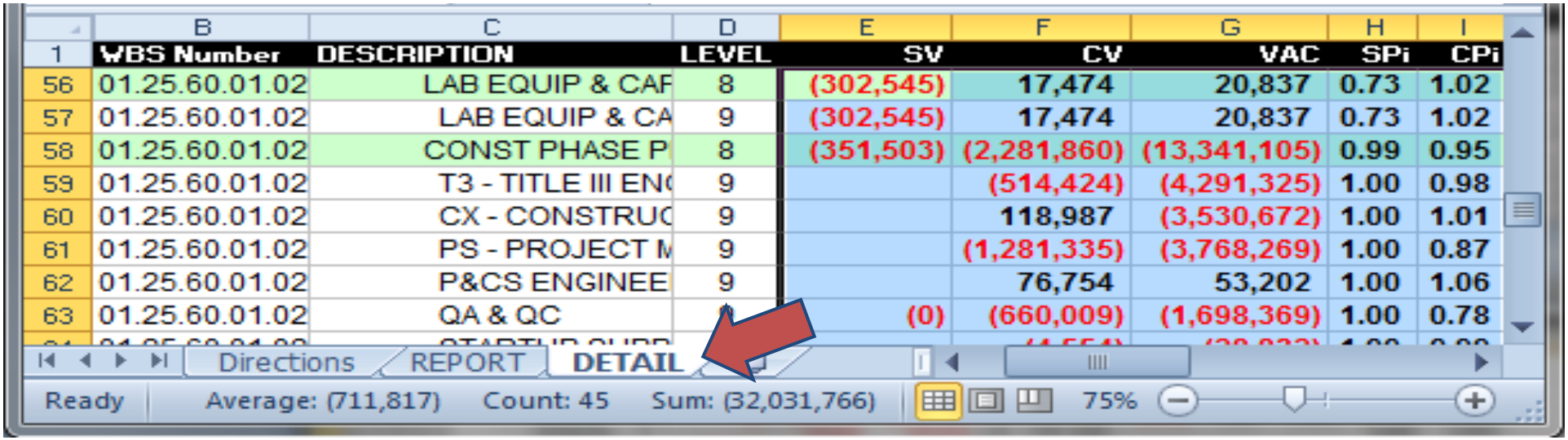


THRESHOLD		CHANGE		COMMENTS
STATUS	MAX	STATUS	ARROW	
Red	0.80	Better	▲	
Yellow	0.90	No Change	-	
Green	1.00	Worse	▼	

WBS Number	DESCRIPTION	SV	CV	VAC	SPi	CPi
01.25.60.01.02.01.(	LAB EQUIP & CAP SPARES	▲	▼	▼	0.73	1.02
01.25.60.01.02.01.(	CONST PHASE PROJECT SU	▼	▼	▲	0.99	0.95
01.25.60.01.02.01.(	T3 – TITLE III ENGINEERING	-	▼	▼	1.00	0.98
01.25.60.01.02.01.(	CX – CONSTRUCTION MAN	-	▼	▲	1.00	1.01
01.25.60.01.02.01.(	PS – PROJECT MANAGEME	-	▼	▲	1.00	0.87
01.25.60.01.02.01.(	P&CS ENGINEERING	-	-	-	1.00	1.06
01.25.60.01.02.01.(	QA & QC	-	▼	▲	1.00	0.78
01.25.60.01.02.01.(	STARTUP SUPPORT	-	-	▲	1.00	0.99
01.25.60.01.02.01.(	ENGINEERING SUPPORT (D	▼	▼	▼	0.57	0.96

Directions | REPORT | ETAIL

Select destination and press ENTER or cho... 60%



	B	C	D	E	F	G	H	I
1	WBS Number	DESCRIPTION	LEVEL	SV	CV	VAC	SPi	CPi
56	01.25.60.01.02	LAB EQUIP & CAF	8	(302,545)	17,474	20,837	0.73	1.02
57	01.25.60.01.02	LAB EQUIP & CA	9	(302,545)	17,474	20,837	0.73	1.02
58	01.25.60.01.02	CONST PHASE P	8	(351,503)	(2,281,860)	(13,341,105)	0.99	0.95
59	01.25.60.01.02	T3 - TITLE III ENG	9		(514,424)	(4,291,325)	1.00	0.98
60	01.25.60.01.02	CX - CONSTRUC	9		118,987	(3,530,672)	1.00	1.01
61	01.25.60.01.02	PS - PROJECT M	9		(1,281,335)	(3,768,269)	1.00	0.87
62	01.25.60.01.02	P&CS ENGINEE	9		76,754	53,202	1.00	1.06
63	01.25.60.01.02	QA & QC	9	(0)	(660,009)	(1,698,369)	1.00	0.78

Directions | REPORT | DETAIL

Ready | Average: (711,817) | Count: 45 | Sum: (32,031,766) | 75%

Using Variance Information

- **Analyze variances**
  - Determine the root cause
  - Determine if recurring or non-recurring (price of one-time purchase)
  - Isolate the non-recurring data when performing trend analysis
  - Target problem areas

In Search of the Root Cause

	Schedule Variance	Cost Variance
Unfavorable	• Lack of resources due to. . . • Late vendor deliveries because. . . • Rework required due to. . . • Work more complex than expected because. . . • Unclear requirements in the areas of . . .	• Work is more complex than anticipated because . . . • Extensive design review comments have resulted in . . . • Material price escalation because of . . . • The estimate was understated because . . .
Favorable	• Increased efficiency due to . . . • Work less complex than anticipated in the areas of . . . • Fewer revisions and rework because . . . • Subcontractor ahead of schedule because . . .	• Efficiencies being realized because . . . • We used less expensive resources to accomplish the work and . . . • We negotiated a lower price with the supplier due to . . .

Summary

- **Variance Analysis**
  - Identify WBS elements
  - Determine the root cause
  - Determine impact
  - Identify corrective actions to prevent reoccurrence and mitigate impact
  - Monitor effectiveness of corrective actions
  - Does the data reflect reality?

DOE OAPM EVM Home Page

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EARNED VALUE MANAGEMENT

- Aviation Management
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- Energy Reduction at HQ
- Facilities and Infrastructure
- Freedom of Information Act
- Financial Assistance
- Information Systems
- Procurement and Acquisition
- Project Management
- Earned Value
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- RCA and CAP
- Career Development Program
- Real Estate
- History

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.

- EVMS Surveillance Standard Operating Procedure (ESSOP) - 26 Sep 2011 (pdf)
  - EV Guideline Assessment Templates - (MS Word)
  - DOE EVMS Cross Reference Checklist - (pdf)
  - DOE EVMS Risk Assessment Matrix - (MS Word)
- Formulas and Terminology "Gold Card" - Sep 2011 (pdf)
- Slides from the OECM Road Show: Earned Value (EV) Analysis and Project Assessment & Reporting System (PARS II) - May 2012 (pdf)
- DOE EVM Guidance

EVM TUTORIALS

Module 1 - Introduction to Earned Value (pdf 446.86 kb) July 17, 2003
This module is the introduction to a series of online tutorials designed to enhance your understanding of Earned Value Management. This module's objective is to introduce you to Earned Value and outline the blueprint for the succeeding modules. This module defines Earned Value management. It looks at the differences between Traditional management and Earned Value management, examines how Earned Value management fits into a program and project environment, and defines the framework necessary for proper Earned Value management implementation.

http://energy.gov/management/office-management/operational-management/project-management/earned-value-management