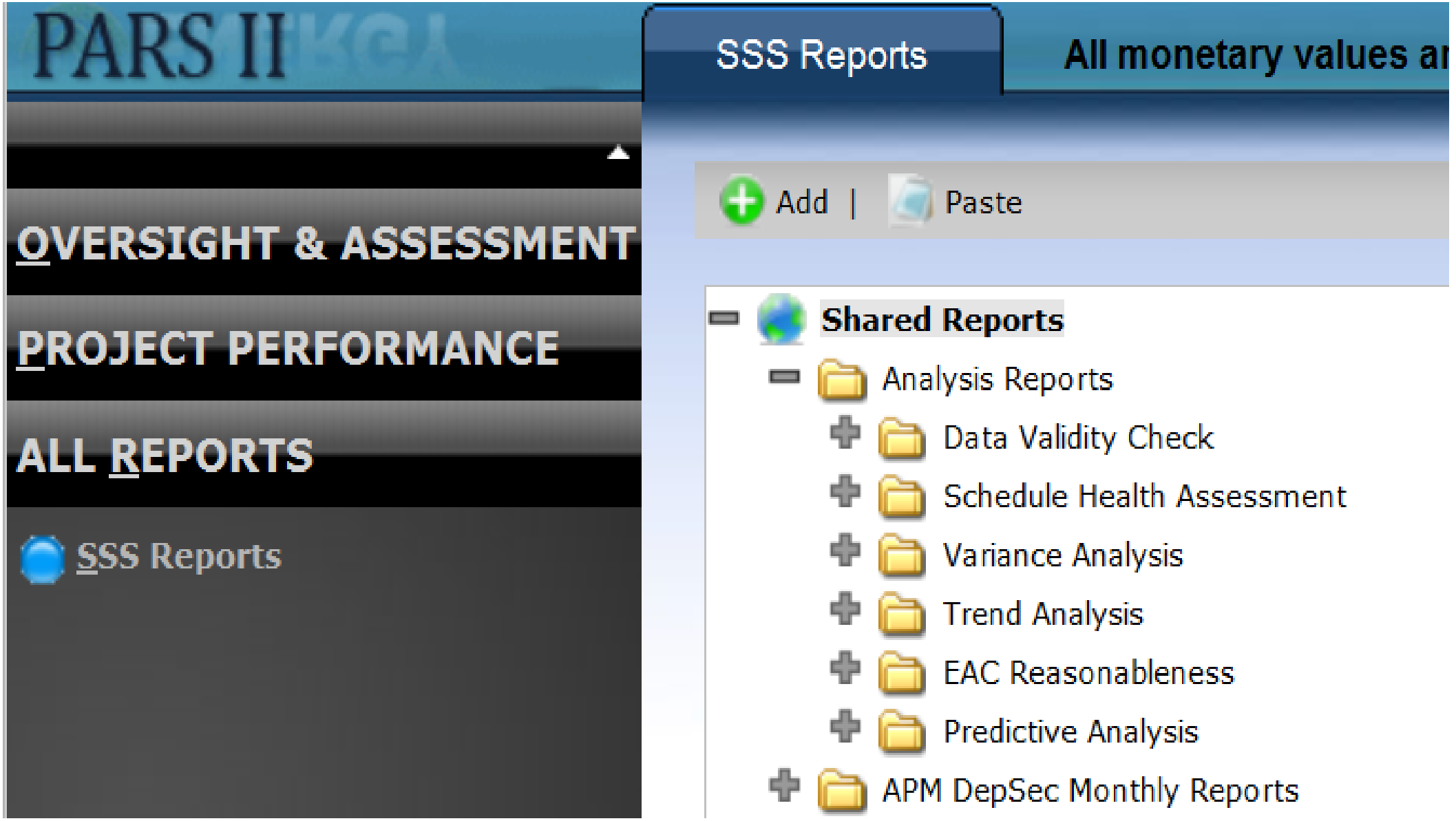
EVMS Training Snippet Library: PARSII Analysis: Schedule Health Assessment

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

Analysis Reports – Project Analysis SOP



- **Analysis Reports**
  - Report use further explained in OAPM's EVMS Project Analysis Standard Operating Procedure (EPASOP)
  - Schedule Health Assessment Subfolder:
    - Schedule Missing Logic (Activity Level)
    - Relationship Leads and Lags (Activity Level)
    - Schedule Relationship Types (Activity Level)
    - Schedule Hard Constraints (Activity Level)
    - Schedule Total Float Analysis (Activity Level)
    - Schedule Duration Analysis (Activity Level)
    - Invalid Forecast and Actual Dates (Activity Level)
    - Schedule "Hit & Miss" Report

What is Schedule Health?

- **An assessment of schedule reliability through use of diagnostics**
- **Schedule health should be assessed routinely**
- **PARSII Limitations:**
  - Schedule health metrics typically exclude Level of Effort tasks from discrete
  - PARSII does not so results may be somewhat skewed if LOE tasks are included in the schedule
  - Solution: Use PARS II as an indicator. When an issue is found then request the baseline and forecast .xer files. The “check” can be repeated in Acumen Fuse by excluding the LOE.

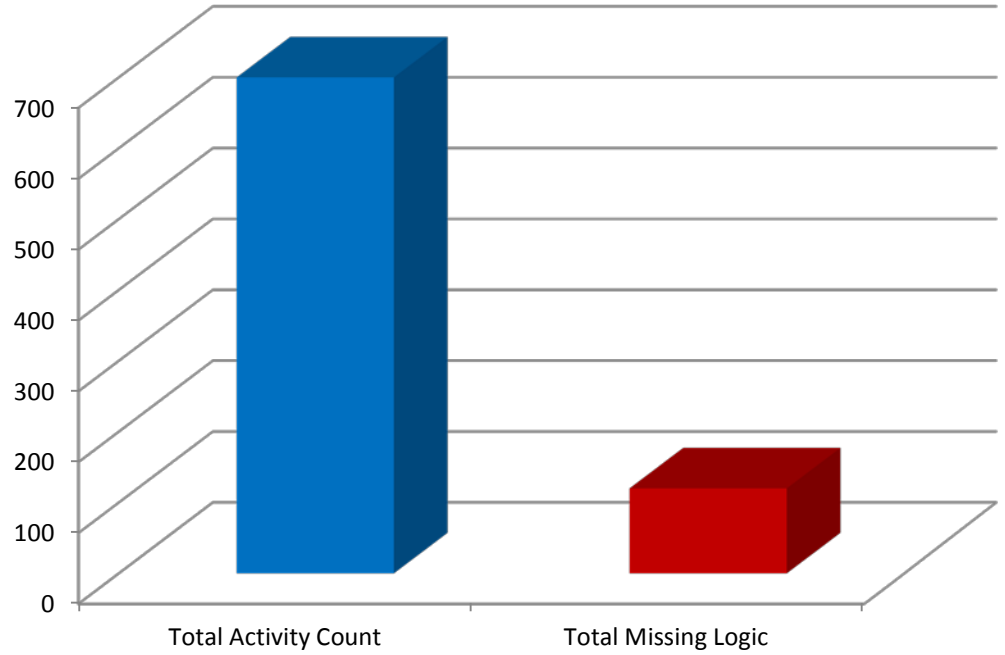
PARSII Schedule Missing Logic (Activity Level) Report

- **Discrete task linkage**
  - Predecessors and successors
  - Properly calculate the Total Float
  - If logic is missing, the true critical path is unknown
- **Metric identifies:**
  - How well the schedule is linked
  - Even if links exist, the logic still needs to be verified by the technical leads to ensure that the links make sense
- **Threshold**
  - % Missing Logic <= 5%

Schedule Logic Analysis

Summary

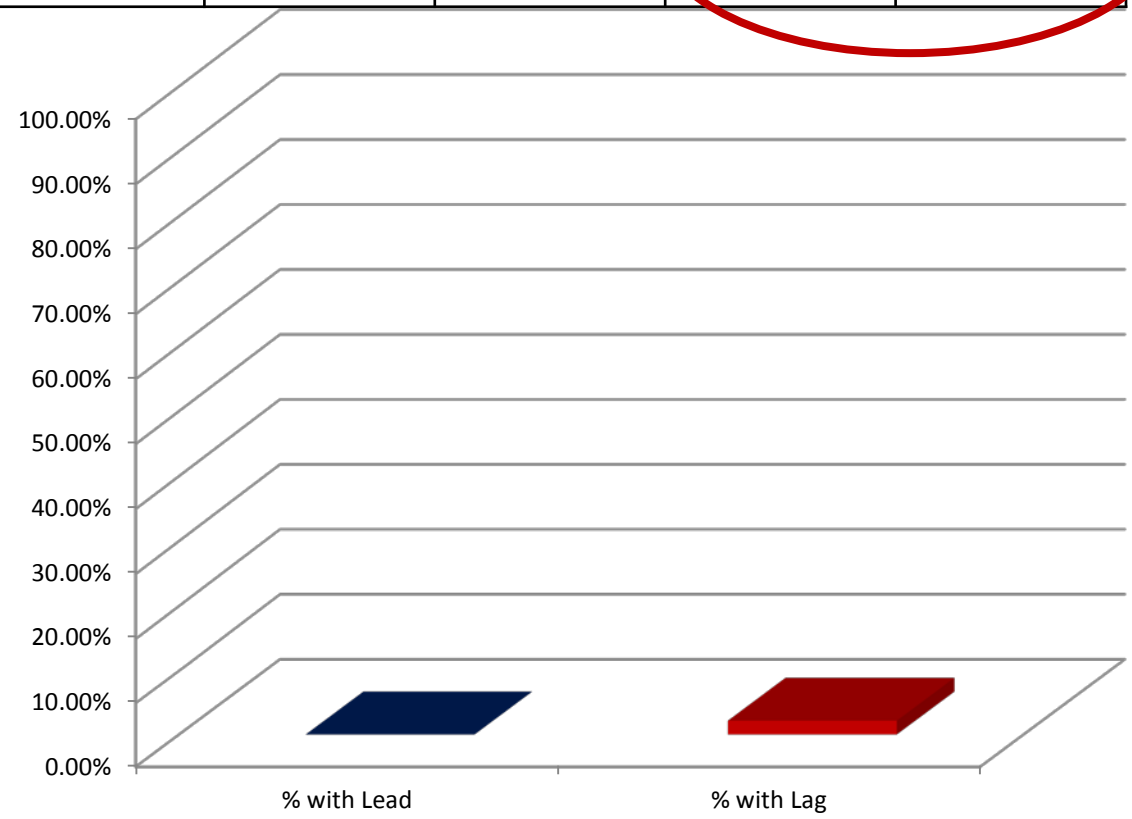
Total Activity Count	Activities Missing Predecessor	Activities Missing Successor	Missing Both Predecessor and Successor	Total Missing Logic	% Missing Logic
700	24	103	7	120	17.14%



PARSII Relationship Leads and Lags Report

- **Leads**
  - Negative lag
  - Next tasks must start before end of previous task
- **Lags**
  - Next task cannot start immediately after prior task
- **Metrics identify**
  - Schedule restraints
- **Threshold**
  - Leads = 0
  - % Lags <= 5%

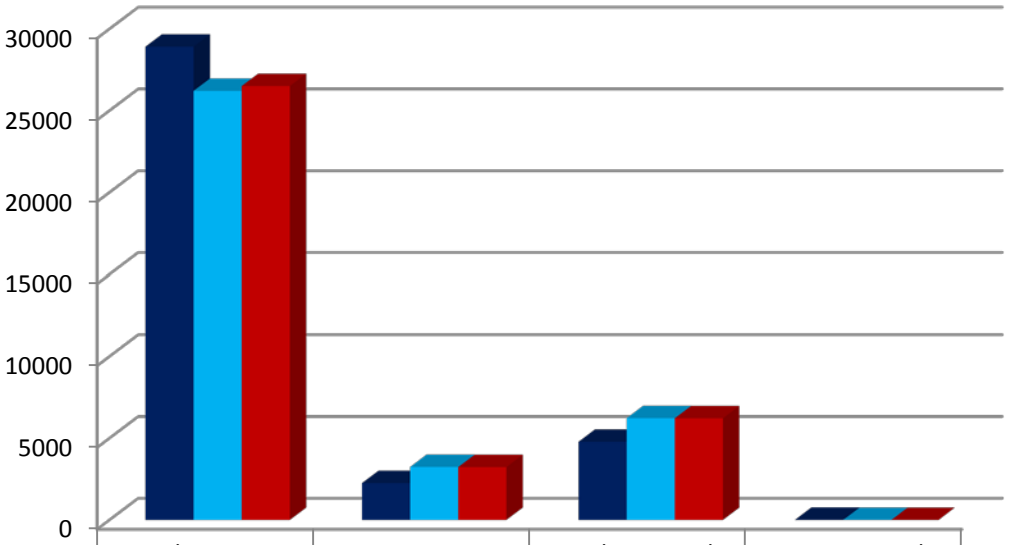
Relationship Leads & Lags				
Total Active Relationships	Active Relationships with Lead	Active Relationships with Lag	% with Lead	% with Lag
1425	**0**	**31**	**0.00%**	**2.18%**



PARSII Schedule Relationship Types (Activity Level)

- **Relationships**
  - Finish-to-Start (FS)
  - Start-to-Start (SS)
  - Finish-to-Finish (FF)
  - Start-to-Finish (SF)
- **Metrics identify**
  - Shifts in relationship types
- **Threshold**
  - None
  - Monitor for significant fluctuations
  - Indicates unstable baseline and work reshuffling

Schedule Relationship Types (Activity Level)				
Schedule	Finish-To-Start	Start-To-Start	Finish-To-Finish	Start-To-Finish
Baseline	28915	2256	4785	12
Prior Period	26212	3243	6228	2
Current Period	26509	3236	6222	1
Variance from Baseline	-8.3%	43.4%	30.0%	-91.7%
Variance from Prior	1.1%	-0.2%	-0.1%	-50.0%



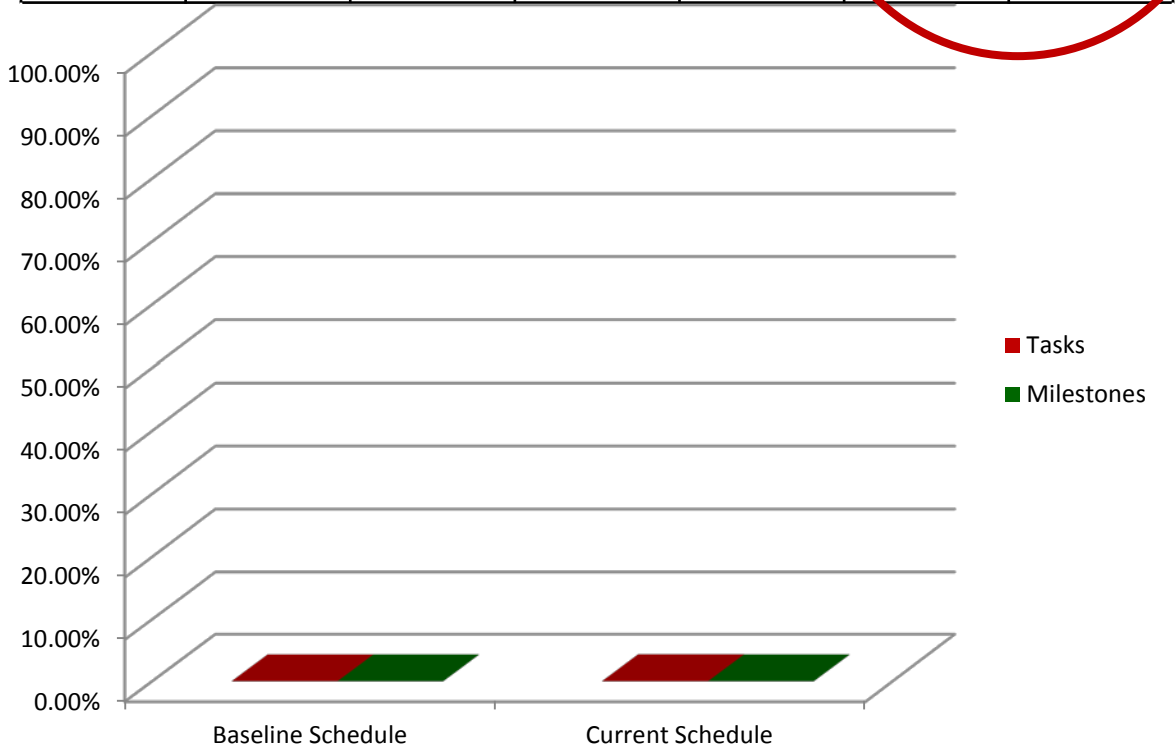
	Finish-To-Start	Start-To-Start	Finish-To-Finish	Start-To-Finish
Baseline	28915	2256	4785	12
Prior Period	26212	3243	6228	2
Current Period	26509	3236	6222	1

PARSII Schedule Hard Constraints (Activity Level)

- **Hard Constraints**
  - Anchor a task in time
  - Override logic
- **Metric**
  - Indicates if schedule is overly constrained, preventing it from being logic driven
- **Threshold**
  - % Hard Constraints <= 5%

Schedule Hard Constraints (Activity Level)

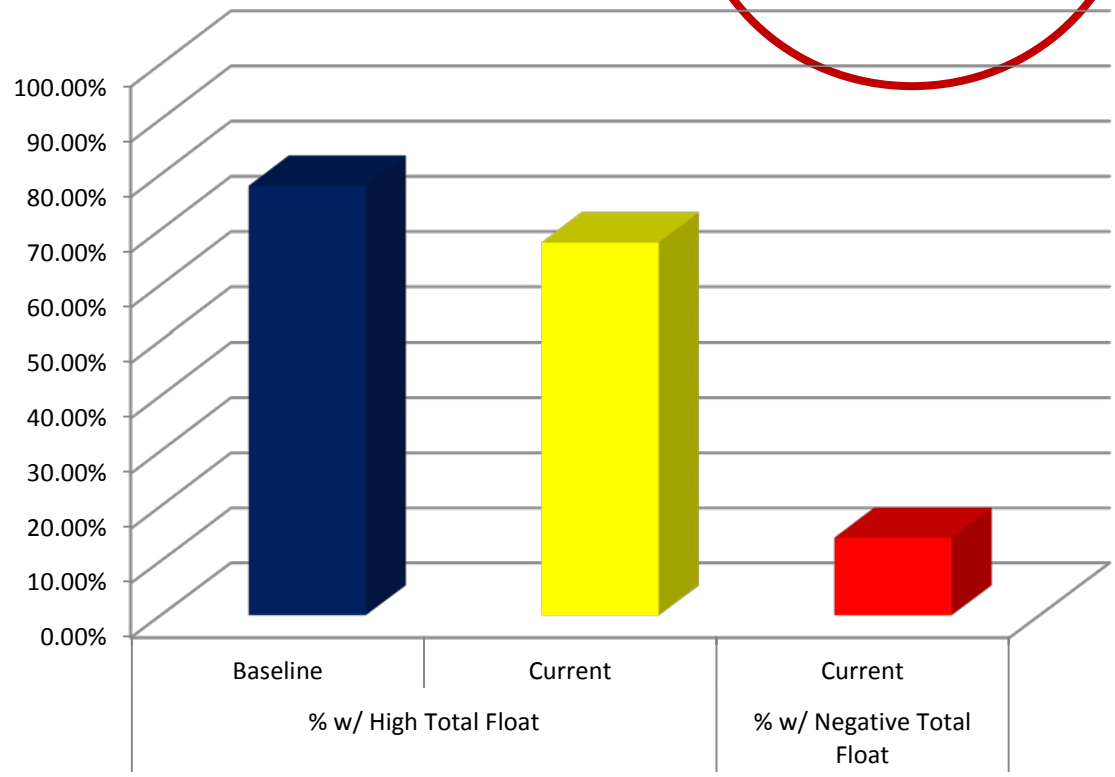
Activity Type	Incomplete Activity Count		Hard Constraint Count		% Activities w/ Hard Constraint	
	Baseline	Current	Baseline	Current	Baseline Schedule	Current Schedule
Tasks	1513	3540	0	1	0.00%	0.03%
Milestones	94	180	0	0	0.00%	0.00%



PARSII Schedule Total Float Analysis (Activity Level)

- **High Float**
  - > 44 days
- **Negative Float**
  - < 0 days
- **Metric**
  - High Float indicates a possible false sense of cushion
  - Negative Float indicates problem with schedule achievability
- **Threshold**
  - % High Total Float < =5%
  - % Negative Float = 0

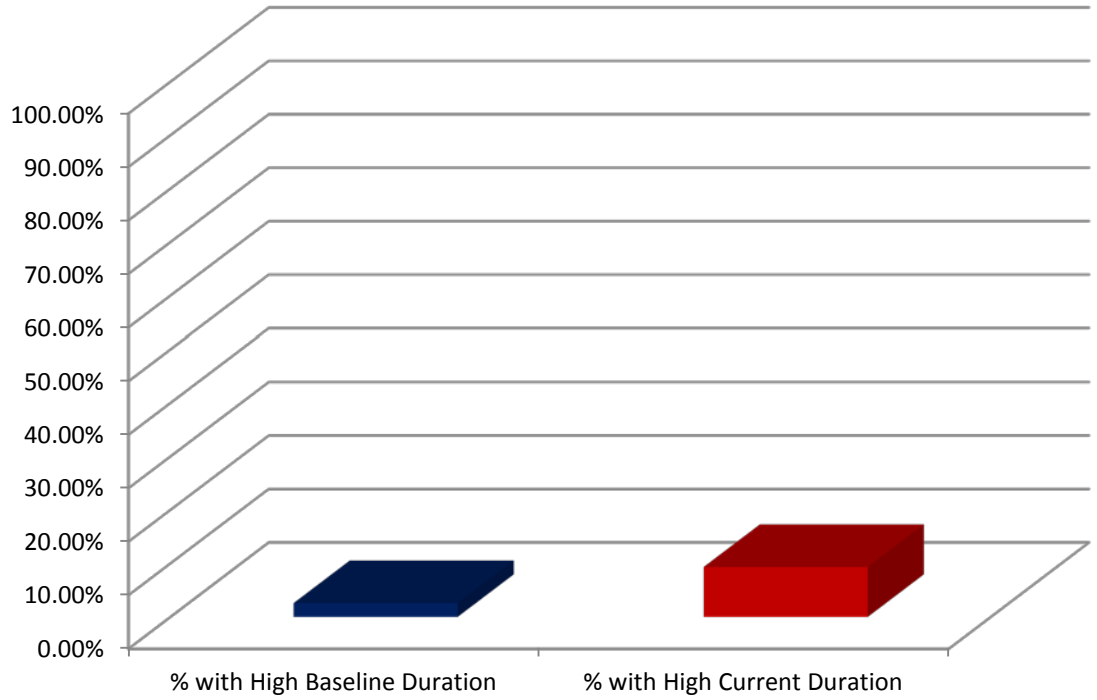
Schedule Total Float Analysis (Activity Level)							
Incomplete Activity Count		High Total Float (> 44 days)		Negative Total Float (< 0 days)	% w/ High Total Float		% w/ Negative Total Float
Baseline	Current	Baseline	Current	Current	Baseline	Current	Current
1513	3540	1179	2394	505	77.92%	67.63%	14.27%



PARSII Schedule Duration Analysis (Activity Level)

- **Duration**
  - > 44 days
- **Metric**
  - Indicates tasks that may be too large to manage effectively
- **Threshold**
  - % Tasks of High Duration <= 5%

Schedule Duration Analysis (Activity Level)				
Total Incomplete Activity Count	Incomplete w/ High Baseline Duration (> 44 days)	% with High Baseline Duration	Incomplete w/ High Current Duration (> 44 days)	% with High Current Duration
3540	91	2.57%	330	9.32%

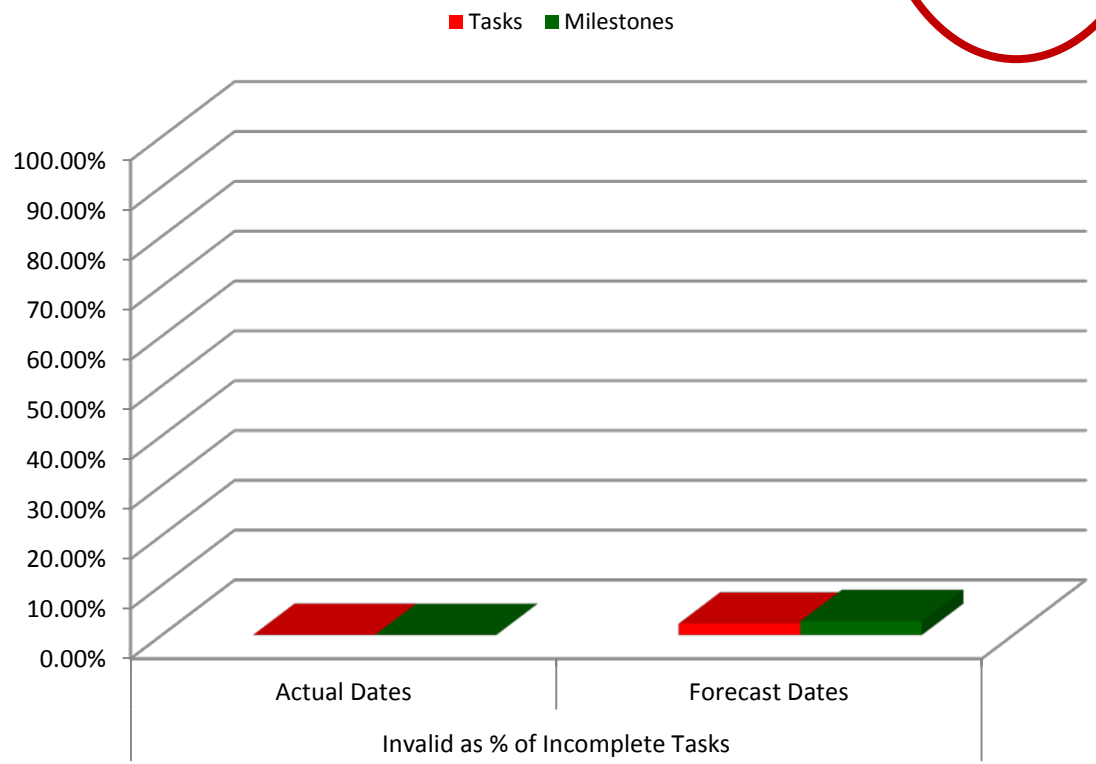


PARSII Invalid Forecasts and Actual Dates (Activity Level)

- **Forecast Dates**
  - Must be in the future
- **Actual Dates**
  - Must not be in future
- **Metric**
  - Indicates if IMS has not been properly statused thus invalidating the IMS and critical path
- **Threshold**
  - Invalid Future Dates = 0
  - Invalid Actual Dates = 0

Invalid Forecast and Actual Dates (Activity Level)

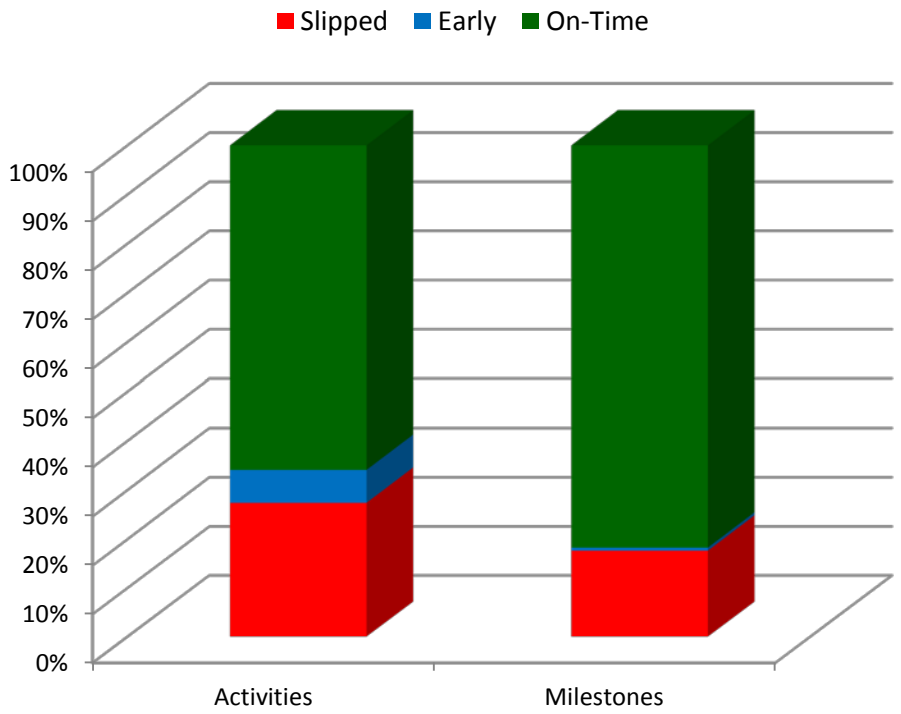
Type	# Incomplete	# Completed	# Invalid Actual Dates			# Invalid Forecast Dates			Invalid as % of Incomplete Tasks	
			Start	Finish	Both	Start	Finish	Both	Actual Dates	Forecast Dates
Tasks	3540	13483	1	0	0	47	48	66	0.01%	2.27%
Milestones	180	590	0	0	0	0	0	10	0.00%	2.78%



PARSII Schedule Hit or Miss Report

- **Hit**
  - Completed early or on time
- **Miss**
  - Completed late or expected to finish late
- **Metric**
  - Indicates schedule progress in meeting the baseline plan
- **Threshold**
  - % Missed Tasks < =5%

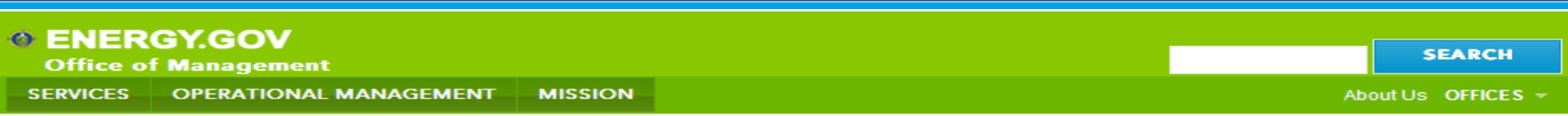
Schedule "Hit & Miss" Report							
	Total	"Miss"	------ "Hit" ----------		"Miss"	-------- "Hit" ----------	
		Slipped	Early	On-Time	Slipped	Early	On-Time
Activities	14,094	3,863	942	9,289	27.41%	6.68%	65.91%
Milestones	645	114	4	527	17.67%	0.62%	81.71%



Summary

- Project management relies on accurate schedules
- The schedule health assessment reports provide insight into whether the schedule was properly constructed and maintained
- Concerns highlighted on these reports should be discussed with the contractor and corrective action (if required) monitored

DOE OAPM EVM Home Page



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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