



**2016** Department of Energy  
Project Management Workshop  
*"Enhancing Project Management"*

# EVMS Automated Tools

Robert Loop  
PM-30



# Agenda

- Discuss the DOE EVMS IH Automated Tools
  - Status
  - Overview how to use
  - Future plans



# DOE EVMSIH Auto Tools

Title	Software Used	Notes	Format Input
Schedule Analytics	Deltek Acumen Fuse	Automates G/L 6 P6 tests	P6 XER Baseline and Forecast
Earned Value Cost/Schedule Analyzer (EVCSA)	MS Access 2013	Automates majority of EVMSIH Auto Tests	Flat File
Element of Cost (EOC) Analyzer	Excel 2013	Tests baseline stability over time	Same as EVCSA tool



# Tools Used by PM-30 for Review

- P6
- Deltek Acumen Fuse
- MS Office Professional including MS Access
- While these tools are not required they are what PM-30 uses to perform the reviews



## Tools Used by PM-30 (Cont.)

- PM-30 Toolkit in Future
  - PARS II will be upgraded to incorporate most if not all of the DOE EVMSIH Automated Tests.
  - P6
  - Tests will be validated in a certification review



# EVCSA Tool: Init Navigation Screen

Main Navigation Page

## DOE Earned Value Cost / Schedule Analyzer (EVCSA)

DOE Release Version 1.0



**U.S. DEPARTMENT OF ENERGY**

**ENERGY**

EVM Dictionary

EVMS Terms & Definitions

DAU EVM Gold Card

Exit

**Import Area**

Review Imported Data    Review Calculated WP Data    Review Calculated CA Data    **DATA IMPORT & SETUP PAGE**

Cost Processor-Lowest Lvl (Current Month WBS data)    Cost Processor-WP (Cumulative WBS data)    Cost Processor - CA (Cumulative WBS data)    **Data Import & Setup**

Cost Processor-Lowest Lvl (Current Month OBS data)    Cost Processor - WP (Cumulative OBS data)    Cost Processor - CA (Cumulative OBS data)    **Executive EVM Compliance Dashboard**

Schedule Data (Activity Level)    Schedule Data (Work Package Level)    Update Dashboard

Updated: 3/28/2016 4:45:27 PM

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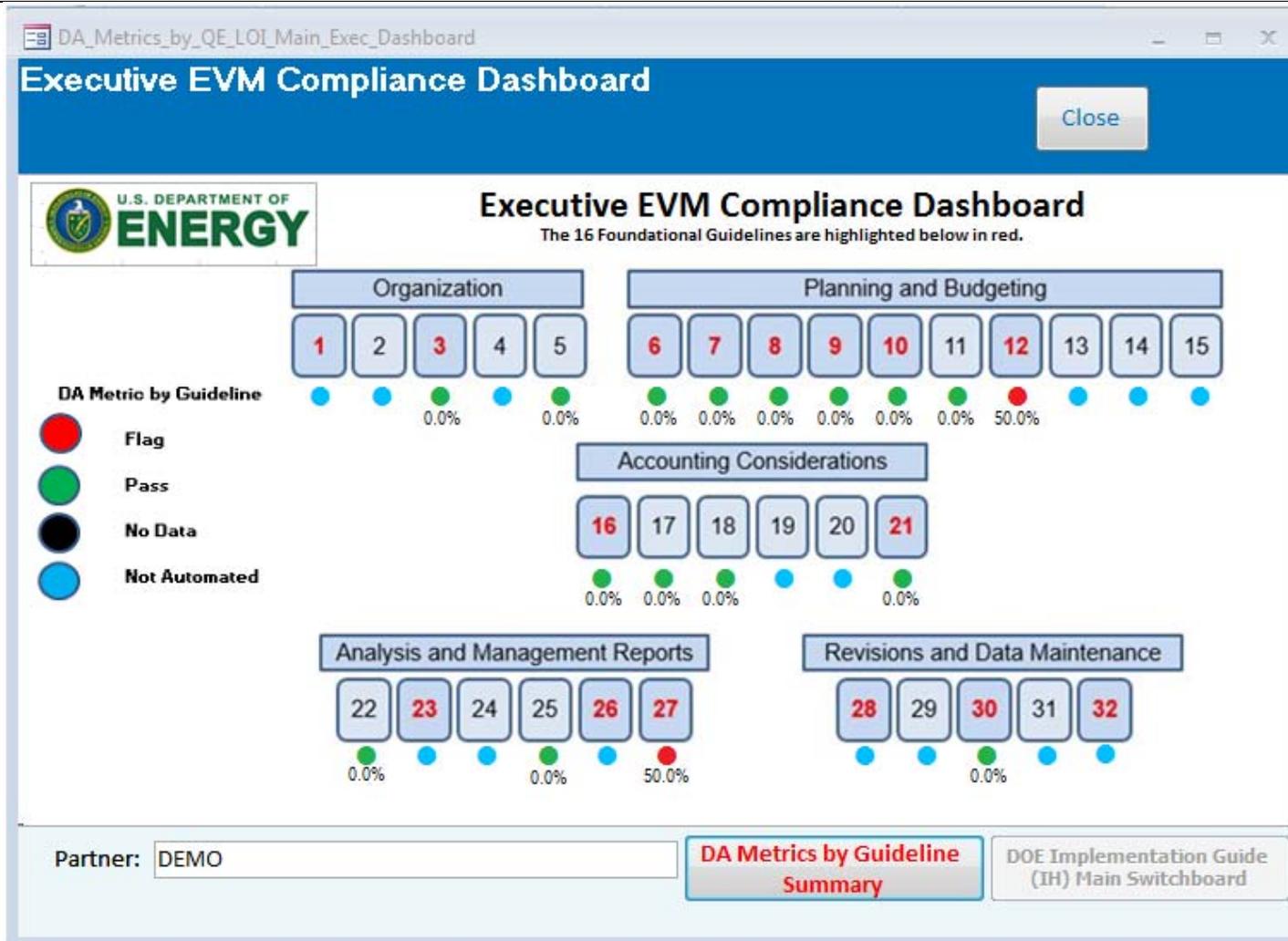
**Primary EVMSIH Area**

**DOE EVMSIH Automated Tests**



# Executive EVM Compliance Dashboard Navigation Screen

Shows percentages for each EIA-748 Guideline Calculated as 'tests failed/total tests' in that Guideline. Click any guideline and all of the tests automatable are displayed.





# Guideline Summary 2nd Screen

QE LOI and Test #

X/Y variable and resulting %. Click on any % to see detailed spreadsheet of the calculations.

Test narrative

Input data source

6A\_collup\_Form

## Guideline 6 - DA Metrics by OE LOE

PLANNING AND BUDGET

Close

Partners: DEMC

6A:	0.0%	GL-6 Percent of DA Metrics Tripped = # of Metrics Tripped/ Total # of Metrics Tested
6A1-1:	0.00%	Count # of incomplete discrete WP, and PP in the EVM Cost Tool that are not represented in the IMS/ Y = Count of all incomplete discrete WP, and PP in the EVM Cost Tool
X-6A1-1:	0	X = # of incomplete discrete WPs, and PPs in the EVM Cost Tool that are not represented in the IMS
Y-6A1-1:	18	Y = # of all incomplete discrete WPs, and PPs in the EVM Cost Tool
6B10-1:	0.00%	Find Y = Remaining discrete activities (excludes EVM EVT LOE, Milestones, Externals, PP and SLPP) with duration > 20 days / Y = n/a
X-6B10-1:	0	X = Remaining discrete activities (excludes EVM EVT LOE, Milestones, Externals, PP and SLPP) with duration > 20 days
Y-6B10-1:	36	Y = Total # of discrete activities (excludes EVM EVT LOE, Milestones, Externals, PP and SLPP)
6B3-1:	0.00%	Count incomplete discrete WPs and PP in the EVM Cost Tool not represented in the IMS. /Y = # of all incomplete discrete WPs and PPs in the EVM Cost Tool
X-6B3-1:	0	X = # of incomplete discrete WPs and PPs in the EVM Cost Tool that are not represented in the IMS
Y-6B3-1:	18	Y = # of all incomplete discrete WPs and PPs in the EVM Cost Tool

\*\*\*Data Source\*\*\*

- EV Cost Processor
- Schedule Data
- EV Cost Processor
- Schedule Data
- EV Cost Processor
- Schedule Data



# EVCSA Individual Test Results

There are commonly three fields to edit/select from.

Month End Date: Defaults to all periods; use the drop down to select one or a subset of months

Selection field: Highlighted in blue, the example shows a peg-count type, 0 or 1. Filtering for 1 in the drop down filter will show only results for the concerns. This is the X variable.

Total Number: Shows the Y variable of the equation.

ME_DATE	IMS_%Comp	Cost_Actual_Finish	IMS_Actual_Finish	WP_Cost<>WP_IMS	Total_Number
9/28/2014	100.00%		5/4/2010		
9/28/2014	100.00%	8/4/2014	5/4/2010		
9/28/2014	100.00%		3/4/2010		
9/28/2014	100.00%	8/4/2014	3/4/2010		
9/28/2014	100.00%		12/1/2008		
9/28/2014	100.00%	8/4/2014	12/1/2008		
9/28/2014	100.00%		7/10/2009		
9/28/2014	100.00%	8/4/2014	7/10/2009		
9/28/2014	100.00%		7/7/2009		
9/28/2014	100.00%	8/4/2014	7/7/2009		
9/28/2014	100.00%		2/12/2010		
9/28/2014	100.00%	8/4/2014	2/12/2010		
9/28/2014	100.00%		3/26/2010		
9/28/2014	100.00%	8/4/2014	3/26/2010		
9/28/2014	100.00%		9/17/2009		
9/28/2014	100.00%	8/4/2014	9/17/2009		
9/28/2014	100.00%		2/8/2010		

Sort Smallest to Largest  
Sort Largest to Smallest  
Clear filter from WP\_Cost<>WP\_IMS  
Number Filters  
 (Select All)  
 (Blanks)  
 0  
 1  
OK Cancel



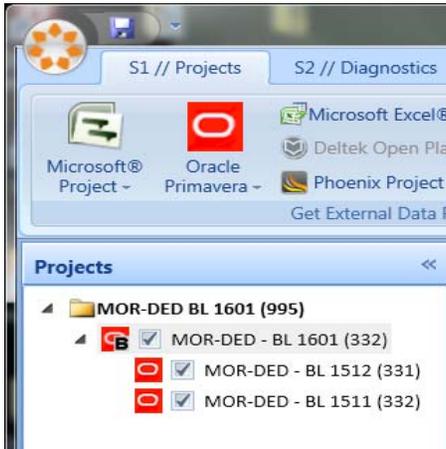
# Schedule Analytics Tool

- Requires Acumen Fuse – most tests can be performed manually.
- Output tied to IH thresholds
- Ran by IH section and baseline verses forecast (6A, 6B, 6C, 6D)
- Separate 22mb file with step by step screenshots to walk through the process. Only difficult part is setup:
  1. Some tests use multiple baselines to compare between months
  2. Some tests use multiple forecast P6 files to compare between months
  3. A few tests use both baseline and forecast together

Caution: Follow the setup instructions carefully as to what is mapped and how the Fuse “baseline” is assigned.



# Examples of the Mapping Required



Variable Definition

**FCST Duration Upper Limit**  
Please select the value that defines FCST Duration Upper Limit 20

**FCST Float Upper Limit**  
Please select the value that defines FCST Float Upper Limit 60

**EV Method**  
Please select the field that defines EV Method  
Please select the value for EV Method that defines LOE Value

**Rolling Wave**  
Please select the field that defines Rolling Wave  
Please select the value for Rolling Wave that defines Planning Package

**Contractor WBS field**  
Please select the field that defines Contractor WBS field WBS Code  
Please select the value for Contractor WBS field that defines Variable 1

**Contractor OBS field**  
Please select the field that defines Contractor OBS field  
Please select the value for Contractor OBS field that defines Variable 1

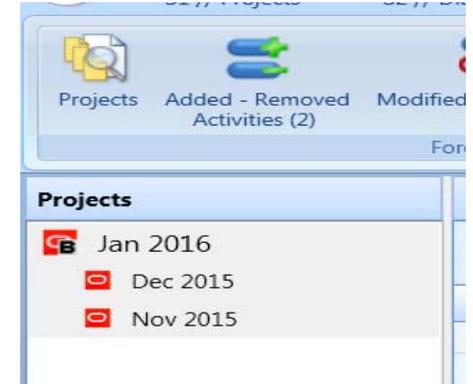
**SVT**  
Please select the field that defines SVT  
Please select the value for SVT that defines SVT Value

**SLPP**  
Please select the field that defines SLPP  
Please select the value for SLPP that defines SLPP Value

**FCST Data Date**  
Please select the value that defines FCST Data Date 8/23/15

**FCST Neg Float**  
Please select the value that defines FCST Neg Float -10

**BL Duration Upper Limit**





# Schedule Analytics Output Screen

The QE LOI number and test descriptions are along the left hand side and the top. The left hand side shows the issues over time and the top shows the total for the period being reviewed.

Always publish the results – choosing the Publish as a “Deltek Acumen Fuse Analyst Report” to see result and the data that triggered the result.

The screenshot displays the Deltek Acumen software interface for 'MOR-DED BL 1601 - Deltek Acumen'. The ribbon at the top contains various tool groups including Projects, Fields, Resources, WBS, Charts, Trend Analysis, Phases, Intersections, Analyze, Logic, Display Settings, Activity Browser Modes, and Publish. The main area is divided into a 'Project / Snapshot' timeline view and a 'Ribbon Analyzer' table. The Ribbon Analyzer table shows metrics for BL Milestone Count, BL Start Milestones, LOI 6.A.2 - 1a BL Start M/S w/o Successors, BL Finish Milestones, LOI 6.A.2 - 1c BL Finish M/S without predecessors, LOI 6.A.3 1a Missing WBS assignments to BL acts, and LOI 6.A.3 2a OBS assignment to BL activities. The bottom section shows a detailed task list for 'LOI 6.A.3 2a OBS assignment to BL activities in IMS in Project Jan 2016 (133)', listing tasks such as 'Perform Accident Risk Assessment', 'Conduct Design Analysis', 'Perform Structural Analysis', etc., with columns for Excluded, Annotate, Id, Description, Project, Original Duration, Remaining Duration, Start, Finish, Total Float, and Actual Start.

BL Milestone Count	BL Start Milestones	LOI 6.A.2 - 1a BL Start M/S w/o Successors	BL Finish Milestones	LOI 6.A.2 - 1c BL Finish M/S without predecessors	LOI 6.A.3 1a Missing WBS assignments to BL acts	LOI 6.A.3 2a OBS assignment to BL activities
13 (4%)	1 (8%)	0 (0%)	12 (92%)	0 (0%)	0 (0%)	133 (42%)
13 (4%)	1 (8%)	0 (0%)	12 (92%)	0 (0%)	0 (0%)	132 (42%)
13 (4%)	1 (8%)	0 (0%)	12 (92%)	0 (0%)	0 (0%)	133 (42%)

#	Excluded	Annotate	Id	Description	Project	Original Duration	Remaining Duration	Start	Finish	Total Float	Actual Start
1			A410...	Perform Accident Risk Assessm...	Jan 2016	2		2 11/2/2015	11/3/2015	209	
2			A4170	Conduct Design Analysis	Jan 2016	5		5 11/2/2015	11/6/2015	205	
3			A4180	Perform Structural Analysis	Jan 2016	10		10 11/2/2015	11/13/2015	200	
4			A4190	Perform Steering Analysis	Jan 2016	5		5 11/2/2015	11/6/2015	205	
5			A4200	Validate Component Reliability...	Jan 2016	5		5 11/2/2015	11/6/2015	205	
6			A4210	Perform Maintainability Analysis	Jan 2016	2		2 11/2/2015	11/3/2015	209	
7			A4250	Perform FEMA	Jan 2016	2		2 11/2/2015	11/3/2015	194	
8			A1750	Preliminary Steering Assembly...	Jan 2016	10		10 11/2/2015	11/13/2015	17	
9			A1760	Preliminary Fork Drawing	Jan 2016	10		10 11/2/2015	11/13/2015	17	
10			A1770	Preliminary Handle Bar Drawing	Jan 2016	5		5 11/2/2015	11/6/2015	23	
11			A1560	Preliminary Suspension Installa...	Jan 2016	8		8 11/2/2015	11/11/2015	13	

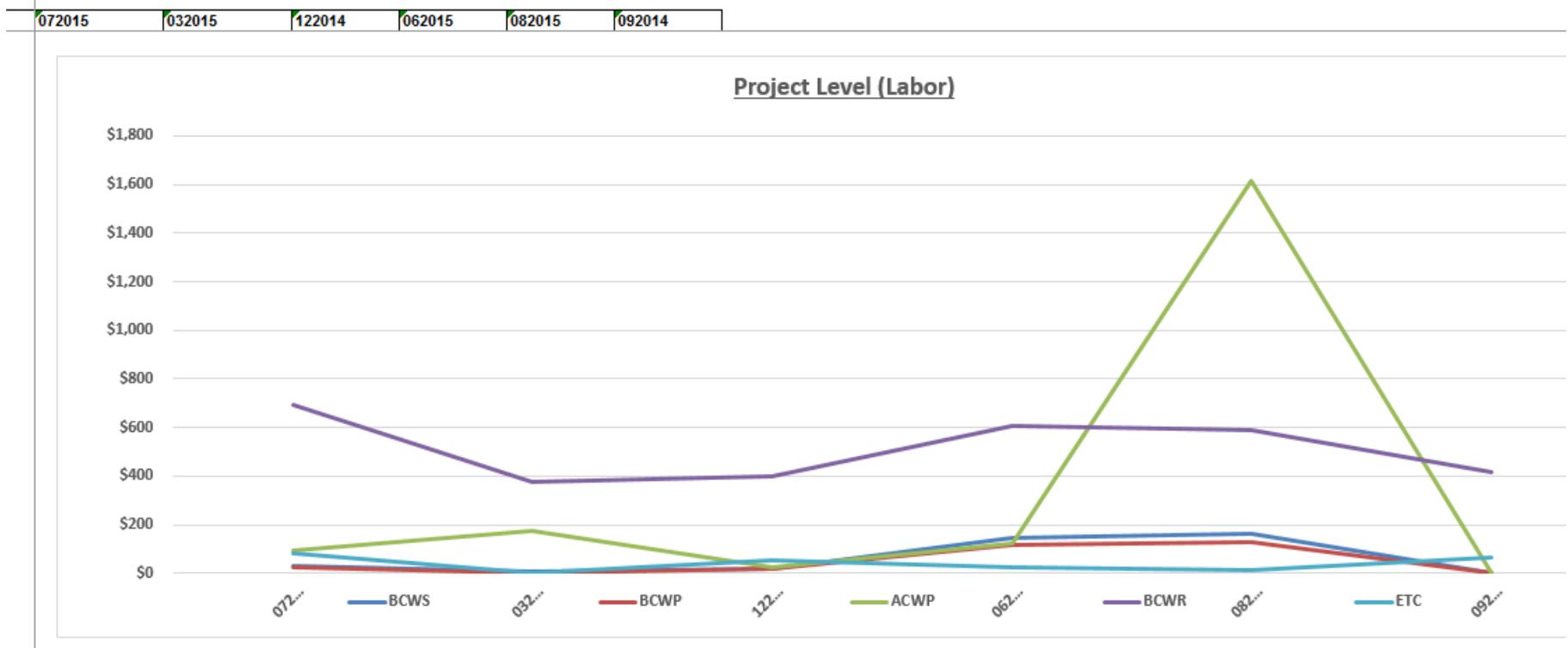


# EOC Analysis Tool

- Time phased cost and schedule analysis
- Uses same import fields as EVCSA tool
- Not specifically tied to DOE EVMSIH
- Provides summary capability to look at EOC information
  - Allows filtering by WBS, type of cost, or specific EOC
  - Displays tabular and graphic output for most reports
- Can run a schedule 'bow wave' report that looks at work pushed out in time
  - May indicate performance concerns
- This tool is not yet ready to deploy to the field

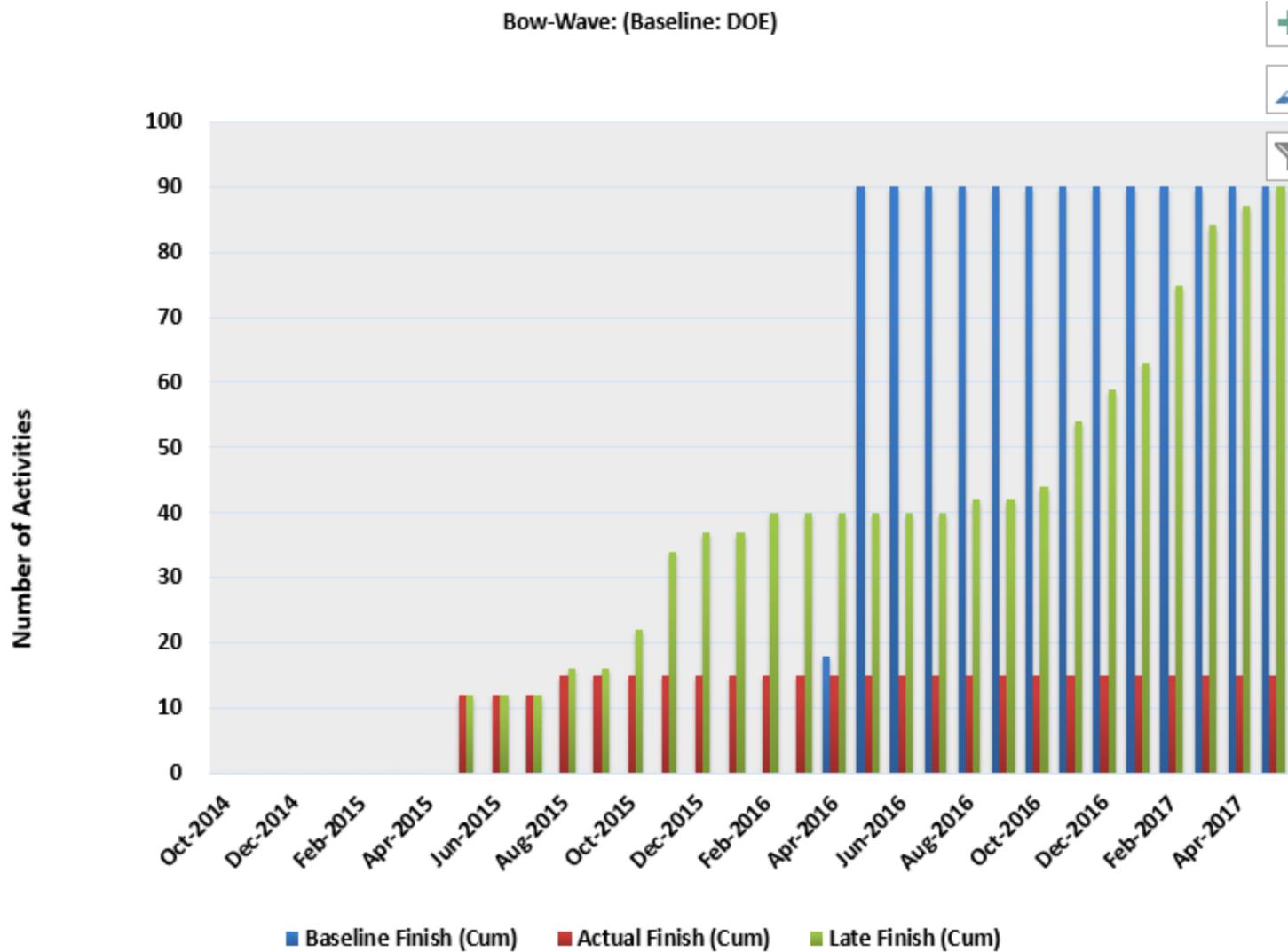


# Example From EOC Analysis Tool





# EOC Analysis Tool Bow-Wave Report





# Existing Data Call Example – G/L 3

WBS at	Open/ Closed Future	OBS >> Excavation Mel Frank	Concrete Dave Kester	Roofing Igor Runs	Elect Donald Duck	Grand Total
01.01.01	C				\$15,183,066	\$15,183,066
01.01.02	C		\$360,517		\$360,517	\$360,517
01.01.03	C		\$1,030,086		\$1,030,086	\$1,030,086
01.01.04	C	\$61,686			\$61,686	\$61,686
01.01.05	C			\$1,399,706	\$1,399,706	\$1,399,706
01.01.06	C		\$733,233		\$733,233	\$733,233
01.01.07	C		\$566,375		\$566,375	\$566,375
01.01.08	C			\$2,020,877	\$2,020,877	\$2,020,877
<b>Project Total</b>		<b>\$61,686</b>	<b>\$2,690,210</b>	<b>\$0</b>	<b>\$18,603,649</b>	<b>\$21,355,545</b>

account	Cost Elemen	Reporting Period	BCWS
01.01.01	A	1	19,212.41
01.01.01	D	2	12,494.69
01.01.01	D	3	12,494.69
01.01.01	M	4	118,686.65
01.01.01	A	5	280,868.27
01.01.01	M	6	1,735,105.33
01.01.01	E	7	1,841,297.06
01.01.01	E	8	1,841,297.06
01.01.01	M	9	1,853,791.75
01.01.01	M	10	1,853,791.75
01.01.01	M	11	790,185.17
01.01.01	E	12	790,185.17
01.01.01	E	13	790,185.17
01.01.01	M	14	790,185.17
01.01.01	M	15	790,185.17
01.01.01	M	16	405,032.15
01.01.01	A	17	42,972.08
01.01.01	E	18	405,032.15
01.01.01	E	19	405,032.15
01.01.01	M	20	405,032.15
<b>Total</b>			<b>15,183,066</b>

## WAD

**WORK AUTHORIZATION DOCUMENT (WAD)**

Program: IMAX Program      WBS: ABC  
 Control Account: Ti Fabrication      Control Account: ABC123  
 Control Account: M I.M.CAM  
 Original Issue: 1/1/2000      Rev No: 2      Rev Date: 1/1/2012

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**STATEMENT OF WORK**

Detailed SOW

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Budget

Hours  
 Direct Dollars: 15,183,066  
 Total Dollars

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**Period of Performance**

Baseline      From: 1/1/2015      To: 10/1/2015

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**Approval**

I. M. CAM      Date: 1/1/2015      Sam Smith, Program Manager      Date: 1/1/2015

Concurrence

Business Manager      Date: 1/1/2015      Scheduler      Date: 1/1/2015

Standard data trace between native formats of RAM, CAP, WAD



# Same Data Trace – Digital Data

## Electronic RAM Import

CA WBS	OBS	O/C	BAC	Period Through
01.01.01	ABC	O	15,183,066	20

## Electronic CAP Import

CA WBS	CE	Period	BCWS
01.01.01	A	20	495,032

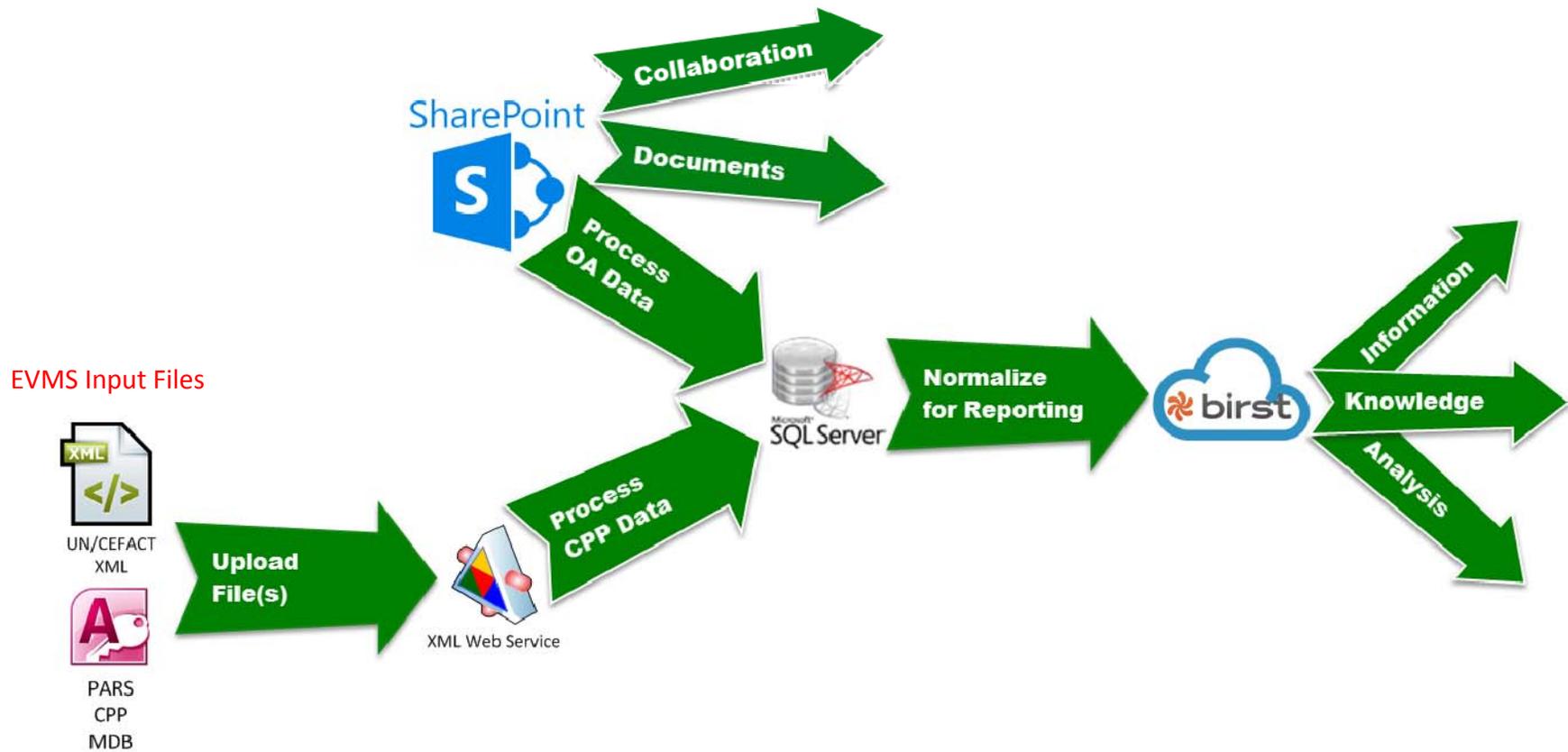
## Electronic WAD

CA WBS	CA OBS	Budget	Period of Performance		Approval Date
			Start	Stop	
01.01.01	A	15,183,066	1/1/2015	10/1/2015	1/1/2015

Digital data allows automation of check in another tool or PARSII



# PARSII Path Forward





# Path Forward with the Auto Tools

- DOE PM will continue to improve the tools through a pilot implementation
- To ensure distribution of the tools, updates, and communication, each site is requested to assign a focal point and send the name, email, and phone number to Robert Loop at [robert.loop@hq.doe.gov](mailto:robert.loop@hq.doe.gov)



# Discussion

