



Enhancing SLIM To Match Company Processes

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This Session



- Overview of SLIM
- How SLIM fits into a process system
- Show enhancements made to SLIM Estimate
- Show enhancements made to SLIM Control
- Recap
- Questions

What is SLIM?



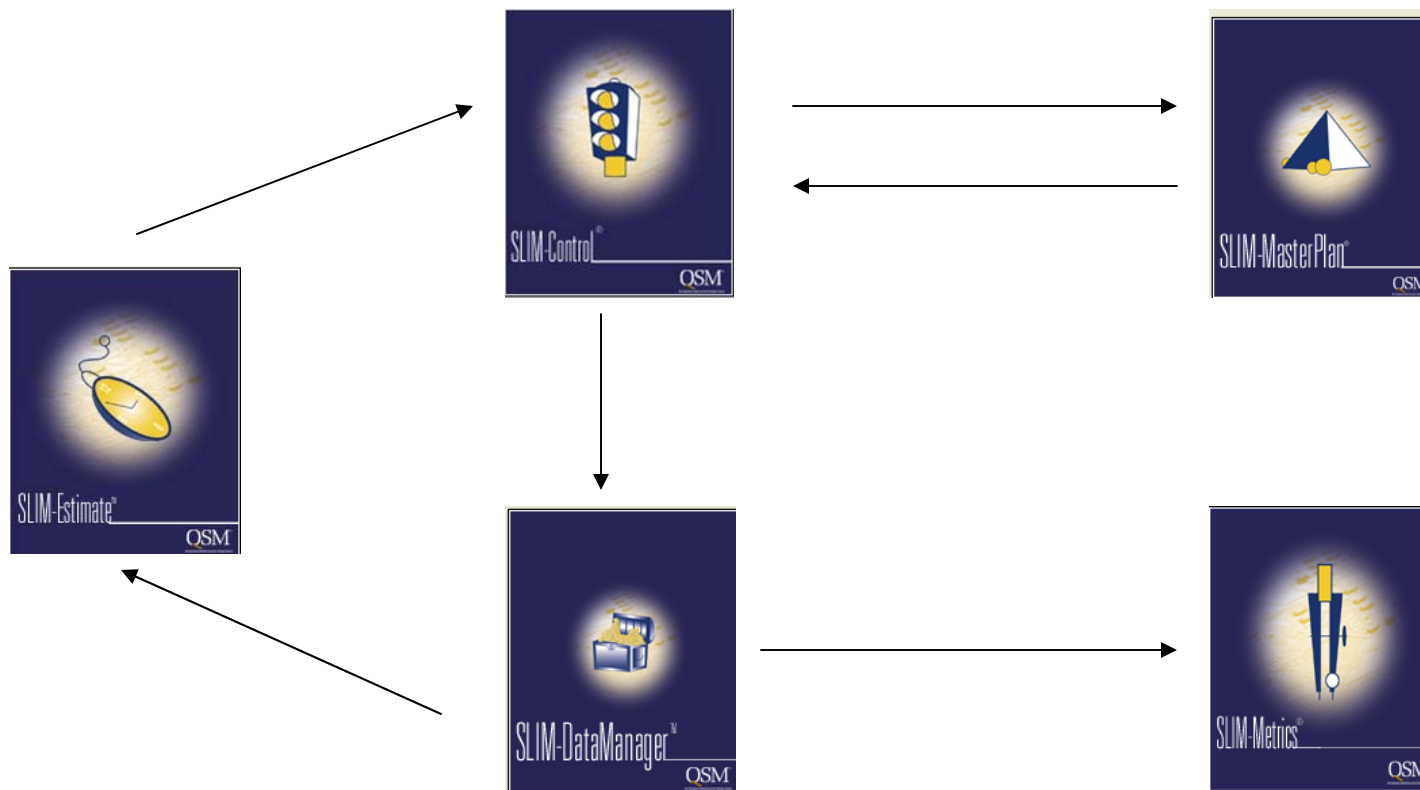
- SLIM (Software Lifecycle Management) is a suite of 5 programs from QSM, Inc. (Quantitative Software Management)

Components of SLIM

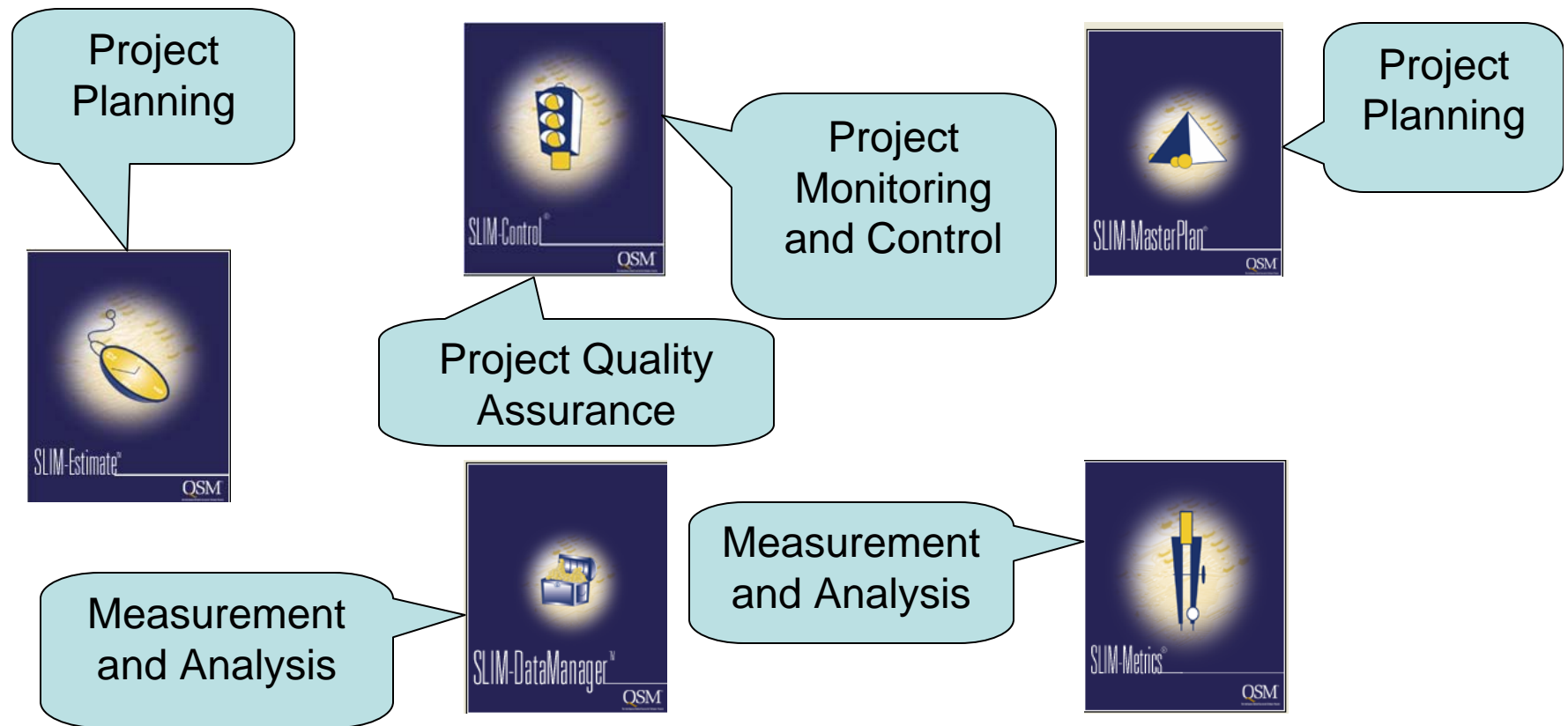


- Estimate for project estimation
- Control for project management
- Master Plan for combining multiple projects into one project plan
- Data Manager for storing your project historical control information
- Metrics for analyzing completed projects

Relationship between SLIM Modules



Alignment to CMMI Process Areas



This session



- Talk about SLIM Estimate and SLIM Control
- Demonstrate how to enhance SLIM to match your process

What is SLIM Estimate



- Use to estimate the size of a project
 - How many people are needed for the project
 - Total staff effort for the project
 - How long it will take to do the project
 - What is the cost of the project
 - Allows you to do what if scenarios

How to estimate a project



- SLIM has several estimation methods
 - Detailed approach
 - Quick Method
 - What can be built based on a given level of effort
 - Solve for PI (Historical projects generate Productivity Index)

Quick Estimate Wizard

The screenshot shows a software window titled "Quick Estimate Wizard: Step 1 of 5 - Project Definition". The window contains three main sections: 1. A text input field for "What is the name of your project?" with the placeholder text "Project Name goes here". 2. A section titled "What phases do you want to include in this estimate?" with four checkboxes: "Concept Definition" (unchecked), "Reqs & Design" (checked), "Construct & Test" (checked), and "Perfective Maint" (checked). 3. A date input field for "What is the start date of the first phase?" with the value "01/01/2007". At the bottom of the window are four buttons: "< Back", "Next >", "Cancel", and "Help". Three callout boxes provide instructions: "Enter your project name" points to the first field, "Identify the SLIM phases to include" points to the checkbox list, and "Tell SLIM the starting date of the project" points to the date field.

Quick Estimate Wizard



Quick Estimate Wizard: Step 2 of 5 - Application Mix

Enter the % of the total system that falls into each application domain.
Press "Help" for descriptions of the application types.

Microcode	<input type="text" value="0"/>	System	<input type="text" value="25"/>	Scientific	<input type="text" value="20"/>
Realtime	<input type="text" value="0"/>	Command & Control	<input type="text" value="40"/>	Process Control	<input type="text" value="0"/>
Avionic	<input type="text" value="0"/>	Telecom	<input type="text" value="0"/>	Business	<input type="text" value="15"/>

(If the percentages entered here total less than 100%, the remaining percentage will be assumed to be "Unknown".)

Identify the type of application mix for your project

< Back Next > Cancel Help

Quick Estimate Wizard



Quick Estimate Wizard: Step 3 of 5 - System Size

Total system size

Can you estimate your total system size?

No, calculate an estimate based on my intuitive assessment of the total system size in SLOC and the QSM historical database of sizes for this type of application.

67000.0

Very Small Small Medium Medium Large Very Large

Yes, use this estimate of the final system size.
Enter the total system size in SLOC

50000

New and modified breakouts

What % of the total system is completely new code? 50 %

What % of the total system is existing code that requires modification? 10 %

If new and modified % total less than 100%, remaining % will be assumed to be reused, unmodified code. The default PI will be adjusted to reflect the amount of reused code.

< Back Next > Cancel Help

How large is the final project?

What percent of the project is new code?

What percent are you modifying code?

Quick Estimate Wizard



Quick Estimate Wizard: Step 4 of 5 - PI

Do you know your anticipated PI?

No, use a starting PI from the QSM trendlines: QSM 2005 Mixed Applications 13.7

No, use a starting PI from the currently selected trendlines: [NA]

1. How good are the tools & methodologies that will support this development process? Unknown 0.0

2. How would you rate the technical complexity of this project? Unknown 0.0

3. How would you rate the competence, experience, & skill level of the development team? Unknown 0.0

Reused, unmodified code adjustment: -1.0

Final PI: 12.7

Yes, use this PI.

< Back Next > Cancel Help

This slide is where you will be determining the Productivity Index (PI) for the project when you don't have a historical productivity Index.

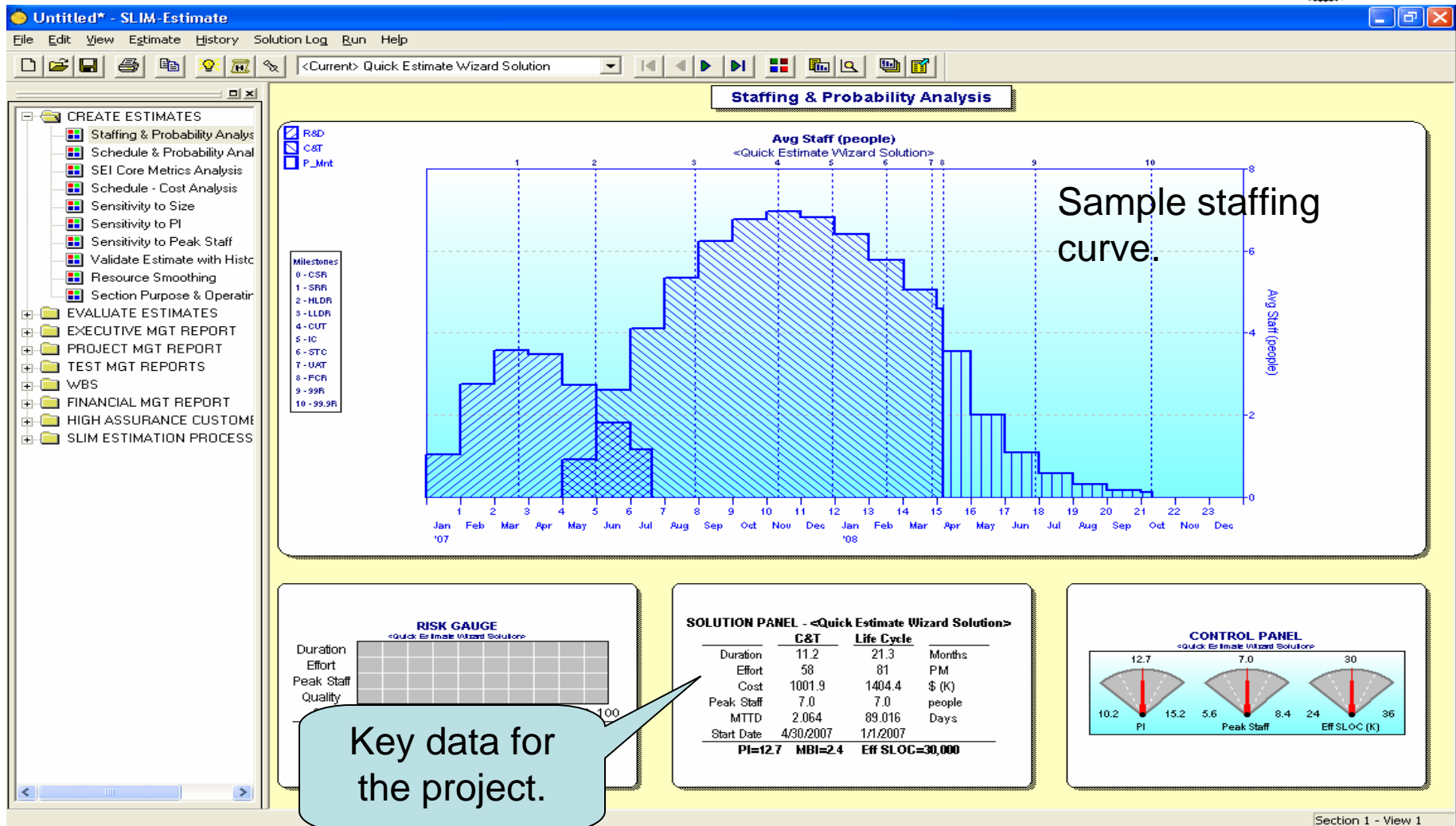
Quick Estimate Wizard



Where3 is where you identify the constraints when estimating the project scope.

A screenshot of a software dialog box titled "Quick Estimate Wizard: Step 5 of 5 - Project Constraints". The dialog has a blue title bar with a close button (X) in the top right corner. The main area has a light beige background. It contains the following text: "Every project has a range of feasible solutions. Given the functionality and environment described in the preceding screens, you can still make some trade-offs between time, cost, and available manpower." Below this is the question "Which is of greatest importance to you on this project?". There are four radio button options: "Schedule is most important.", "Cost is most important.", "Schedule and cost are equally important." (which is selected and has a dotted border around it), and "C&T peak staff is limited to [] people." where [] is a small empty text input field. At the bottom of the dialog are four buttons: "< Back", "Next >", "Cancel", and "Help".

Estimate Output



Configure Milestones



This is the default Milestones Provided by SLIM Estimate

Project Environment

Project Description | Reliability | Phases | **Milestones**

Include	ID	Acronym	Name	%	of Phase	Description
<input checked="" type="checkbox"/>	0	CSR	Concept Sufficiency Review	100	Phase 1	A formal review to determine whether to proceed with the design and development of the system.
<input checked="" type="checkbox"/>	1	SRR	Software Requirements Review	40	Phase 2	A formal review to verify the complete set of requirements of the system.
<input checked="" type="checkbox"/>	2	HLDR	High Level Design Review	75	Phase 2	A formal review of the high level design specification.
<input checked="" type="checkbox"/>	3	LLDR	Low Level Design Review	35	Phase 3	A review of the detailed logic design for each element of the system. Held when design and Code and unit testing is complete.
<input checked="" type="checkbox"/>	4	CUT	Code & Unit Test Complete	57	Phase 3	
<input checked="" type="checkbox"/>	5	IC	Integration Complete	71	Phase 3	Subsystem integration testing is complete.
<input checked="" type="checkbox"/>	6	STC	System Test Complete	85	Phase 3	System testing is complete.
<input checked="" type="checkbox"/>	7	UAT	User Acceptance Test Complete	97	Phase 3	User testing is complete.
<input checked="" type="checkbox"/>	8	FCR	First Customer Release	100	Phase 3	The completion of testing and certified by QA for release. The software is 95% defect free.
<input checked="" type="checkbox"/>	9	99R	99% Defect Free	44	Phase 4	Continued correction of latent defects results in a system that is 99% defect free.

Automatically renumber after insertions and deletions

Right-click on any cell for editing menu.

Sort by ID

Sort by % and Phase

Restore QSM Defaults

Milestone Calculator...

MILESTONES

OK Cancel Help

Our milestones based on process gates

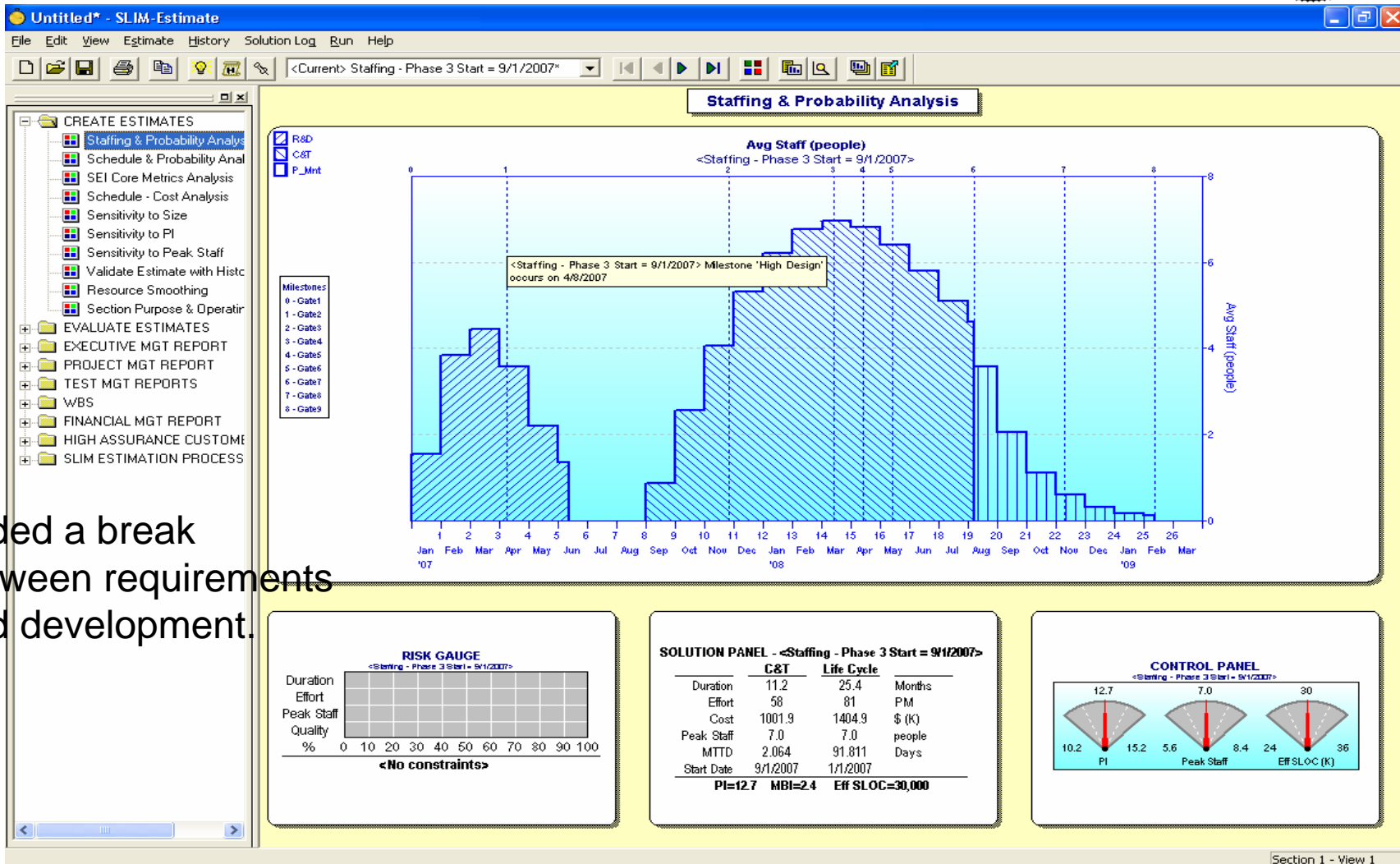


The screenshot shows a software application window titled "Project Environment" with a tabbed interface. The "Milestones" tab is active, displaying a table of milestones. Below the table, there is a Gantt chart area with a legend, a checkbox for "Automatically renumber after insertions and deletions", and several buttons for sorting and calculation. The table data is as follows:

Include	ID	Acronym	Name	%	of Phase	Description
<input checked="" type="checkbox"/>	0	Gate1	Software Requirements	0	Phase 2	Start software requirements based on marketing input.
<input checked="" type="checkbox"/>	1	Gate2	High Design	60	Phase 2	Start high level design based on approved requirements
<input checked="" type="checkbox"/>	2	Gate3	Code	25	Phase 3	Coding of solution is started
<input checked="" type="checkbox"/>	3	Gate4	Unit Test	57	Phase 3	Unit testing of software starts
<input checked="" type="checkbox"/>	4	Gate5	Integration Test	66	Phase 3	Integrate all unit code and start integration testing
<input checked="" type="checkbox"/>	5	Gate6	System Test Complete	75	Phase 3	Start system testing
<input checked="" type="checkbox"/>	6	Gate7	Customer Testing	0	Phase 4	Start beta testing
<input checked="" type="checkbox"/>	7	Gate8	Field Testing	50	Phase 4	Start field trial
<input checked="" type="checkbox"/>	8	Gate9	Release of software	100	Phase 4	Software is made available to all customers

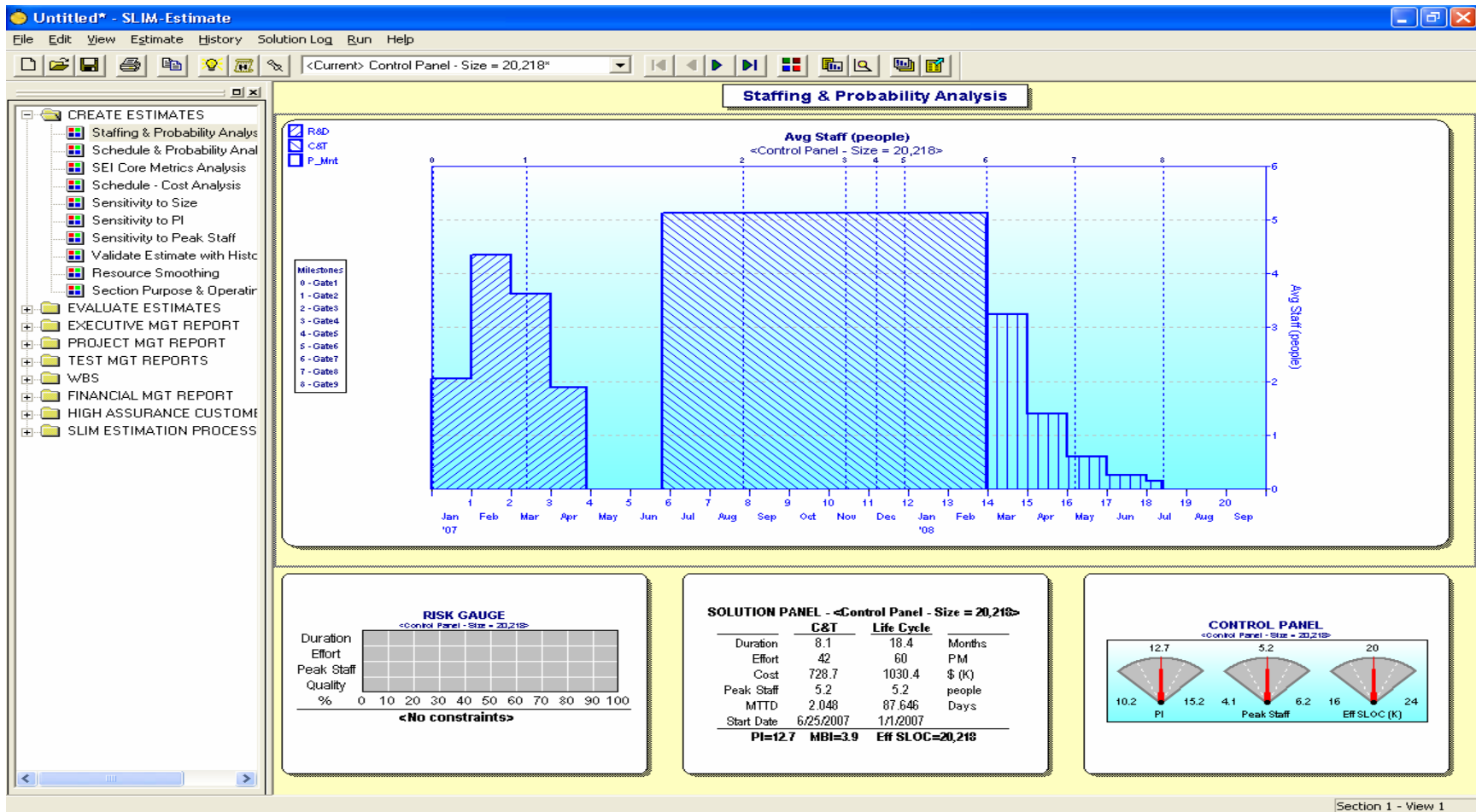
Below the table, there is a Gantt chart area with a legend on the left showing milestones 0-8. To the right of the Gantt chart is a checkbox labeled "Automatically renumber after insertions and deletions" which is checked. Below this checkbox are four buttons: "Sort by ID", "Sort by % and Phase", "Restore QSM Defaults", and "Milestone Calculator...". To the right of these buttons is the text "Right-click on any cell for editing menu." At the bottom of the window are three buttons: "OK", "Cancel", and "Help".

Modified Estimate



Added a break
 Between requirements
 And development.

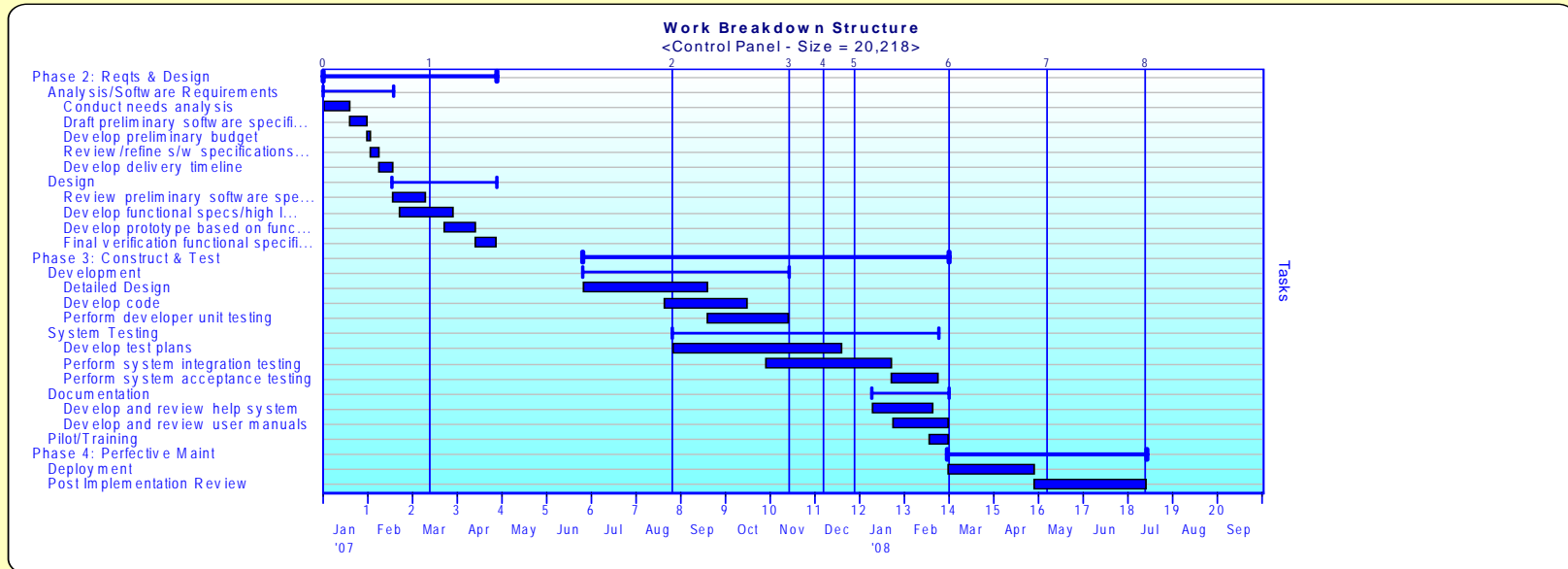
Change to level load development and 20K not 30K lines of code



Work Breakdown Structure

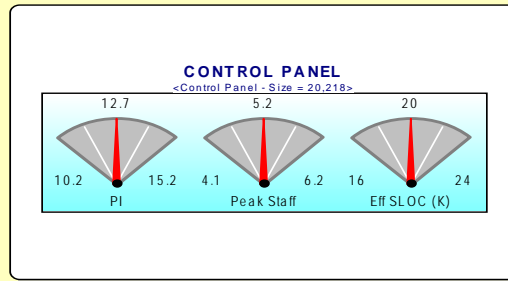
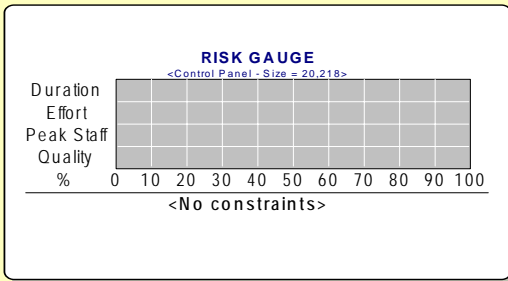


Schedule & Probability Analysis



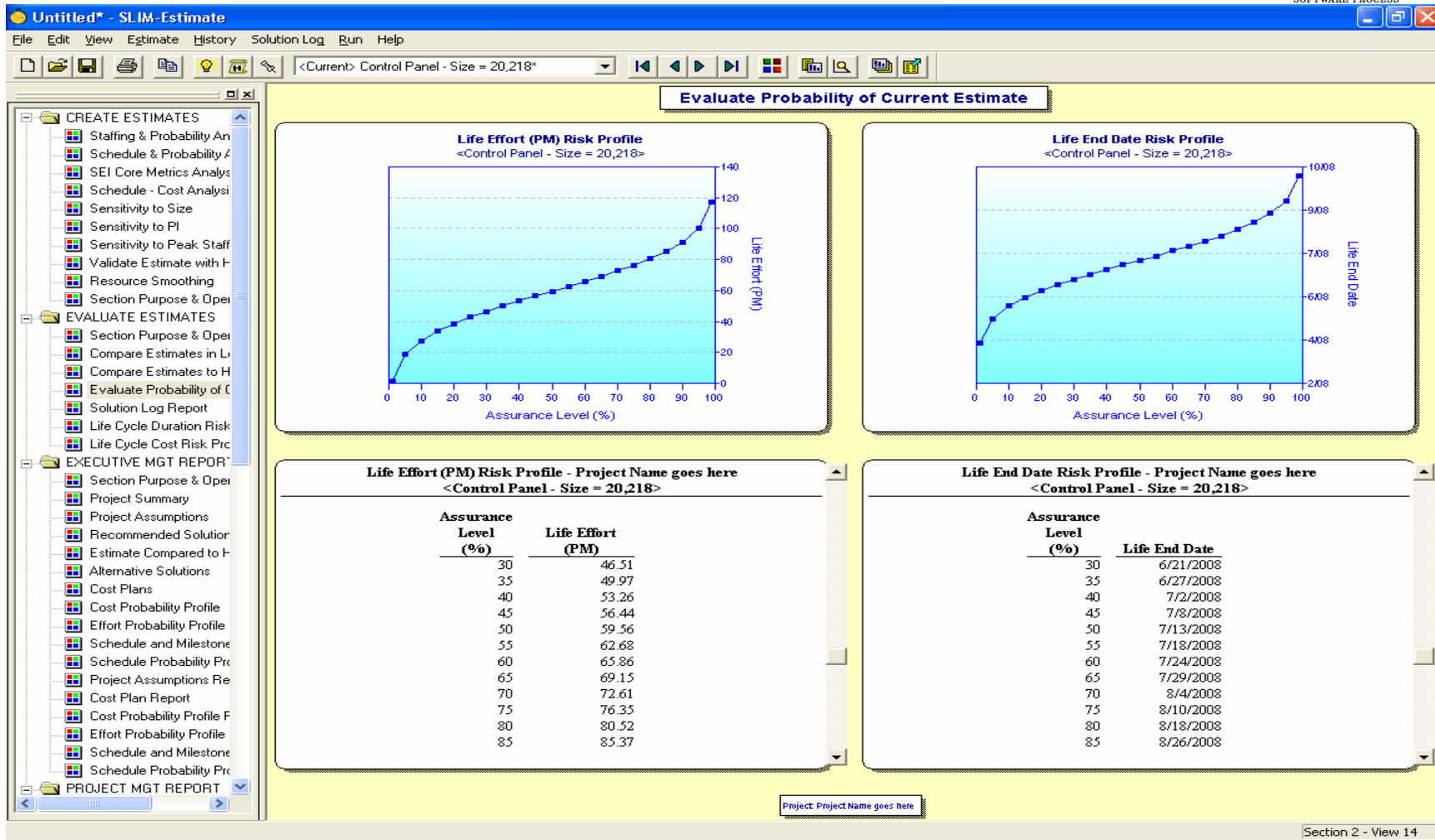
SOLUTION PANEL - <Control Panel - Size = 20,218>

	C&T	Life Cycle	
Duration	8.1	18.4	Months
Effort	42	60	PM
Cost	728.7	1030.4	\$ (K)
Peak Staff	5.2	5.2	people
MTTD	2.048	87.646	Days
Start Date	6/25/2007	1/1/2007	
PI=12.7 MBI=3.9 Eff SLOC=20,218			



Project: Project Name goes here

Probability of doing the project

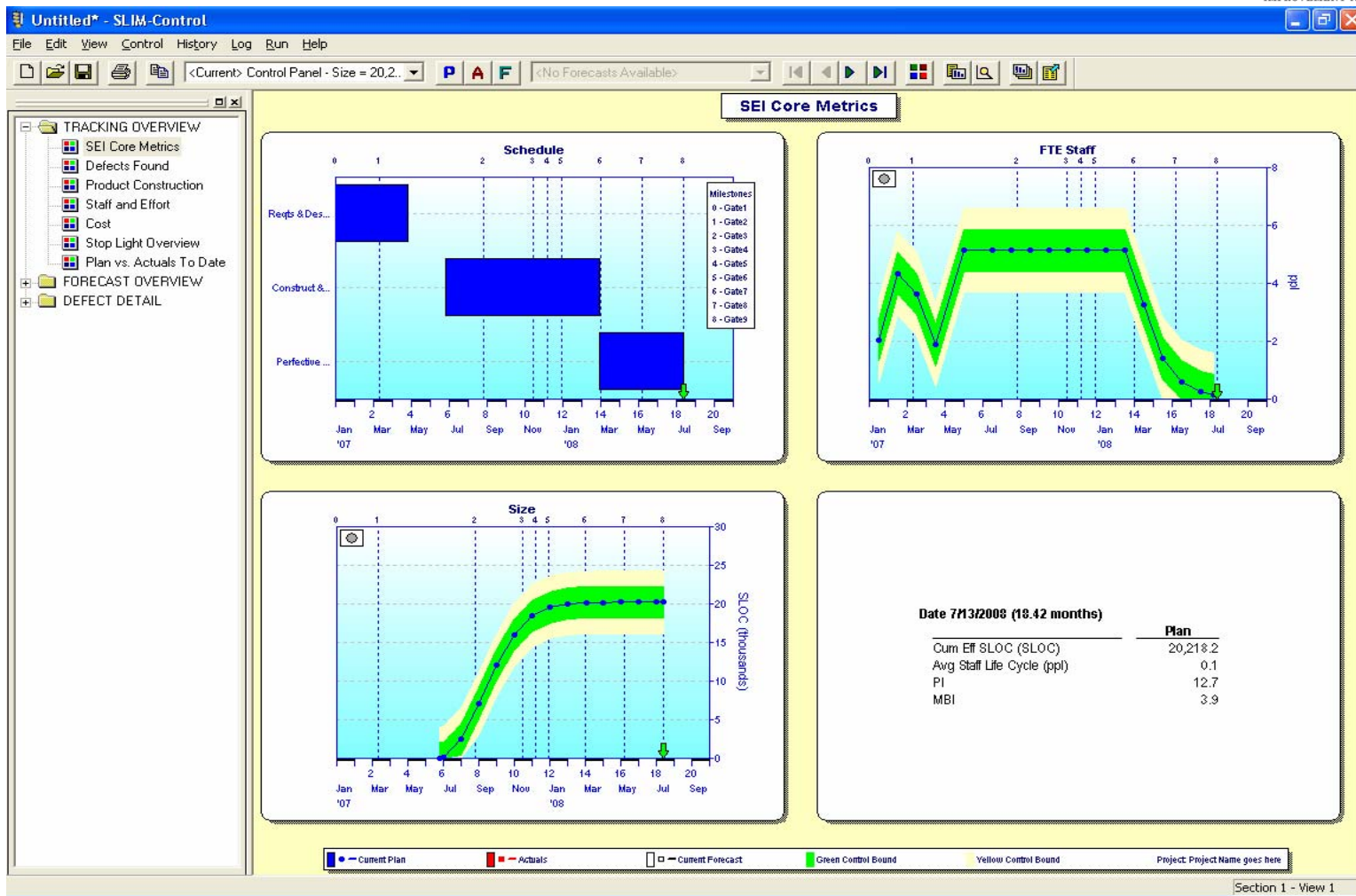


SLIM Control



- Used to monitor progress of the project
- Defect arrival
- Defect fixed
- Staffing
- Product development
- Test progress

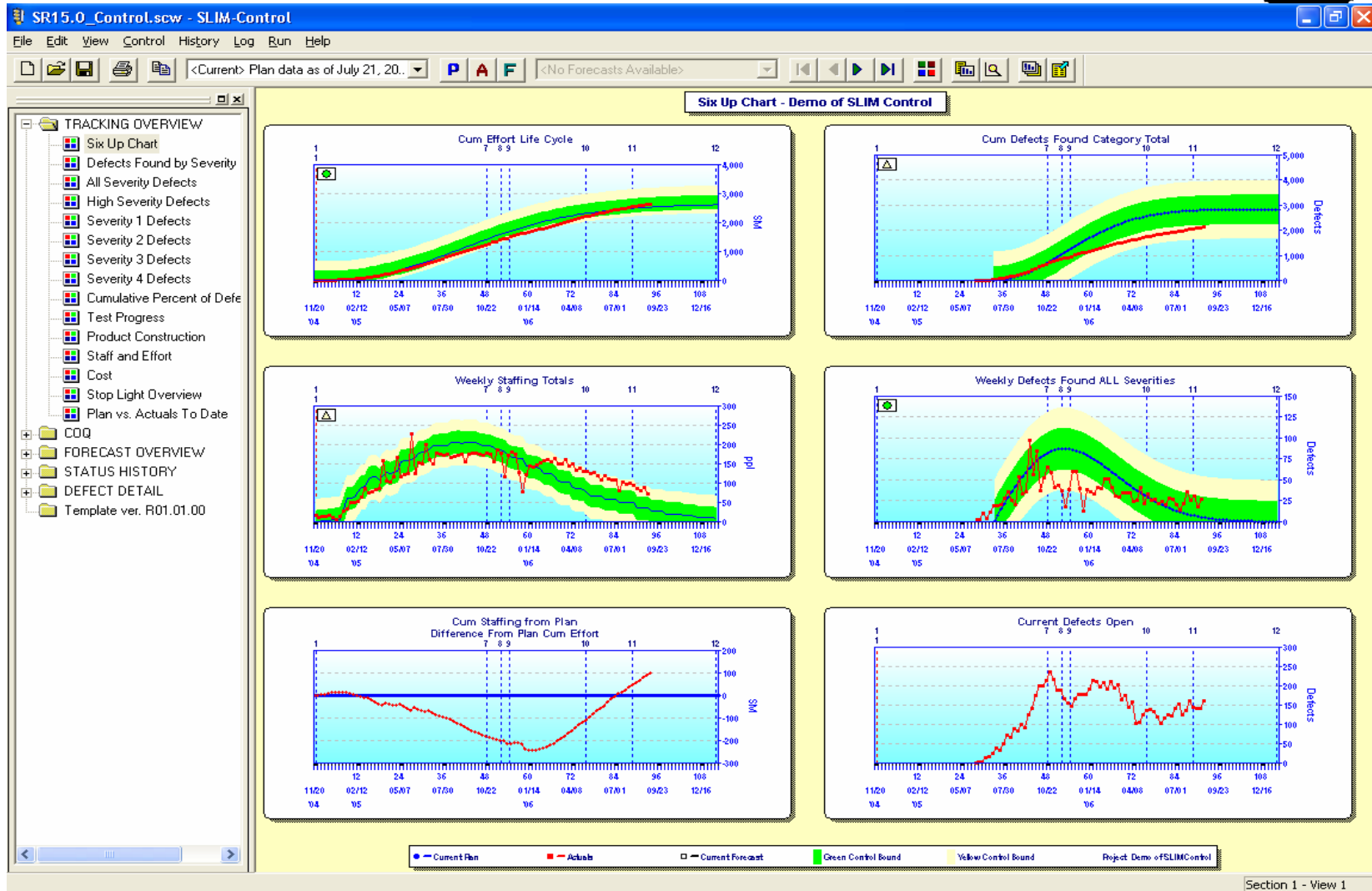
Default SLIM Control screen



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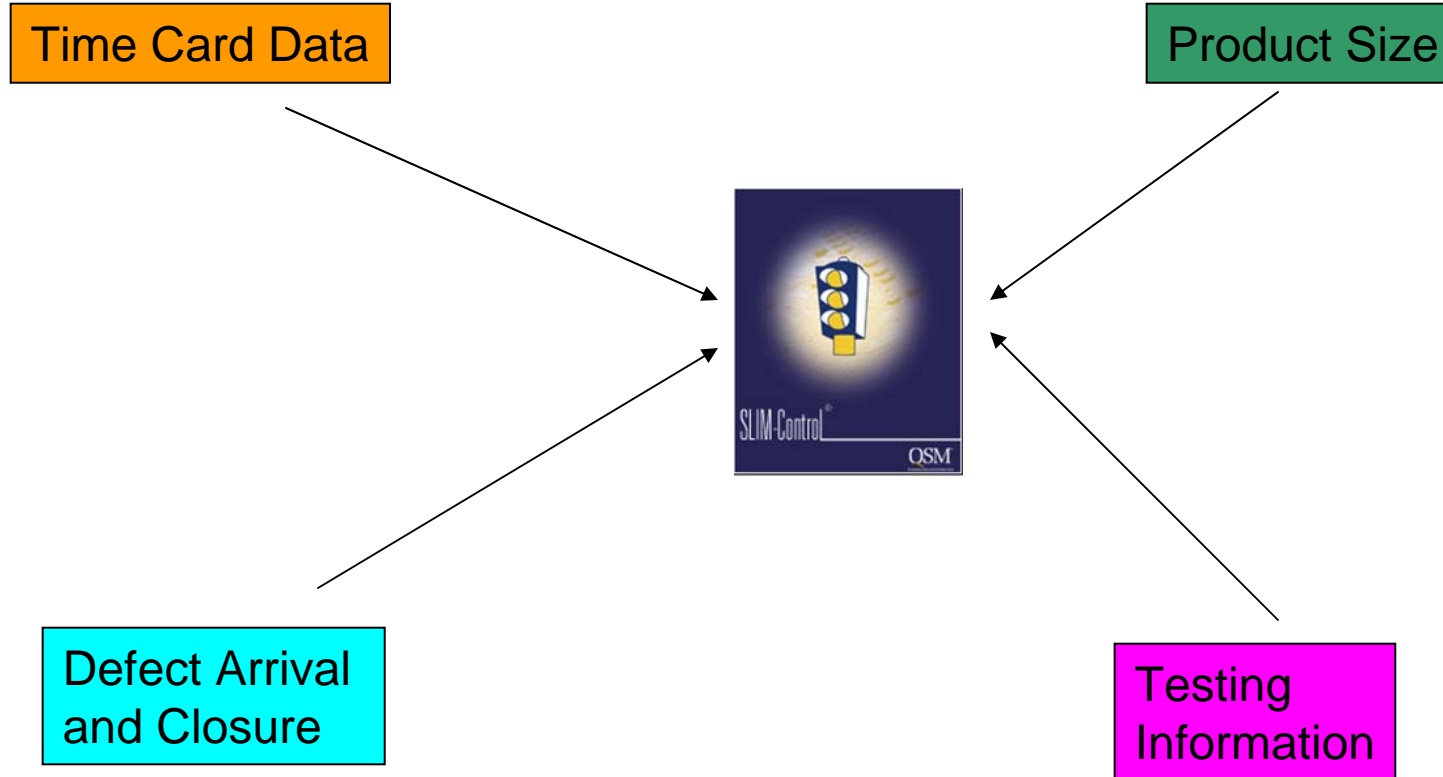
My Default Screen



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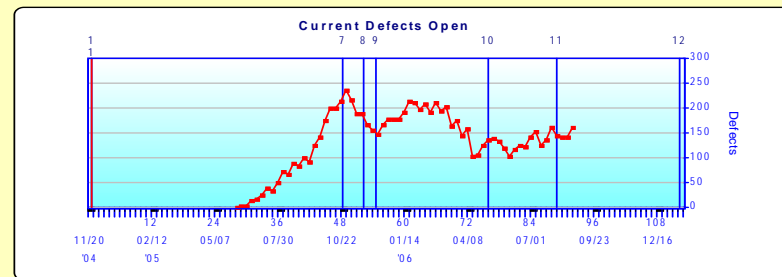
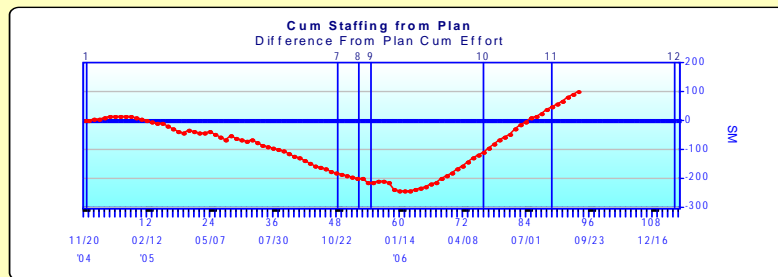
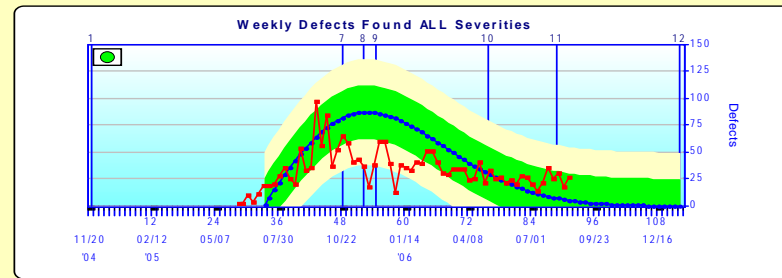
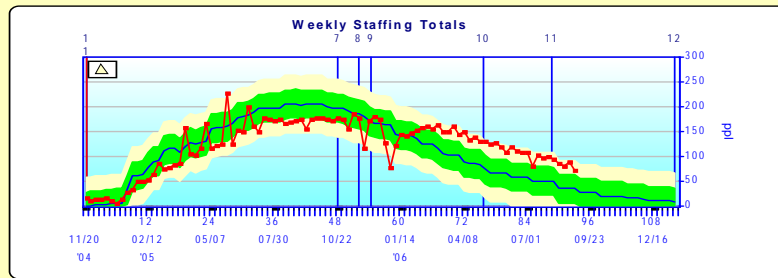
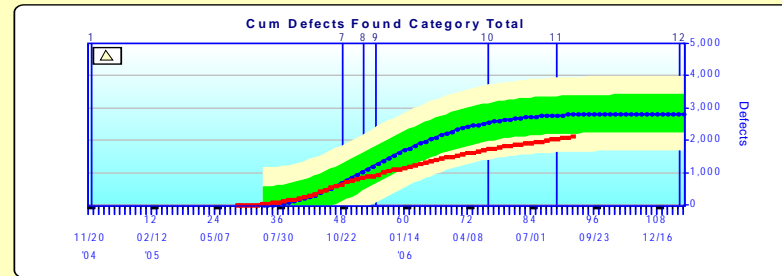
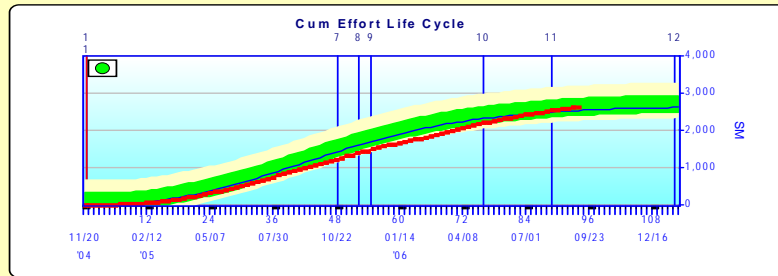
Getting actual data into SLIM Control



Time Tracking information



Six Up Chart - Demo of SLIM Control



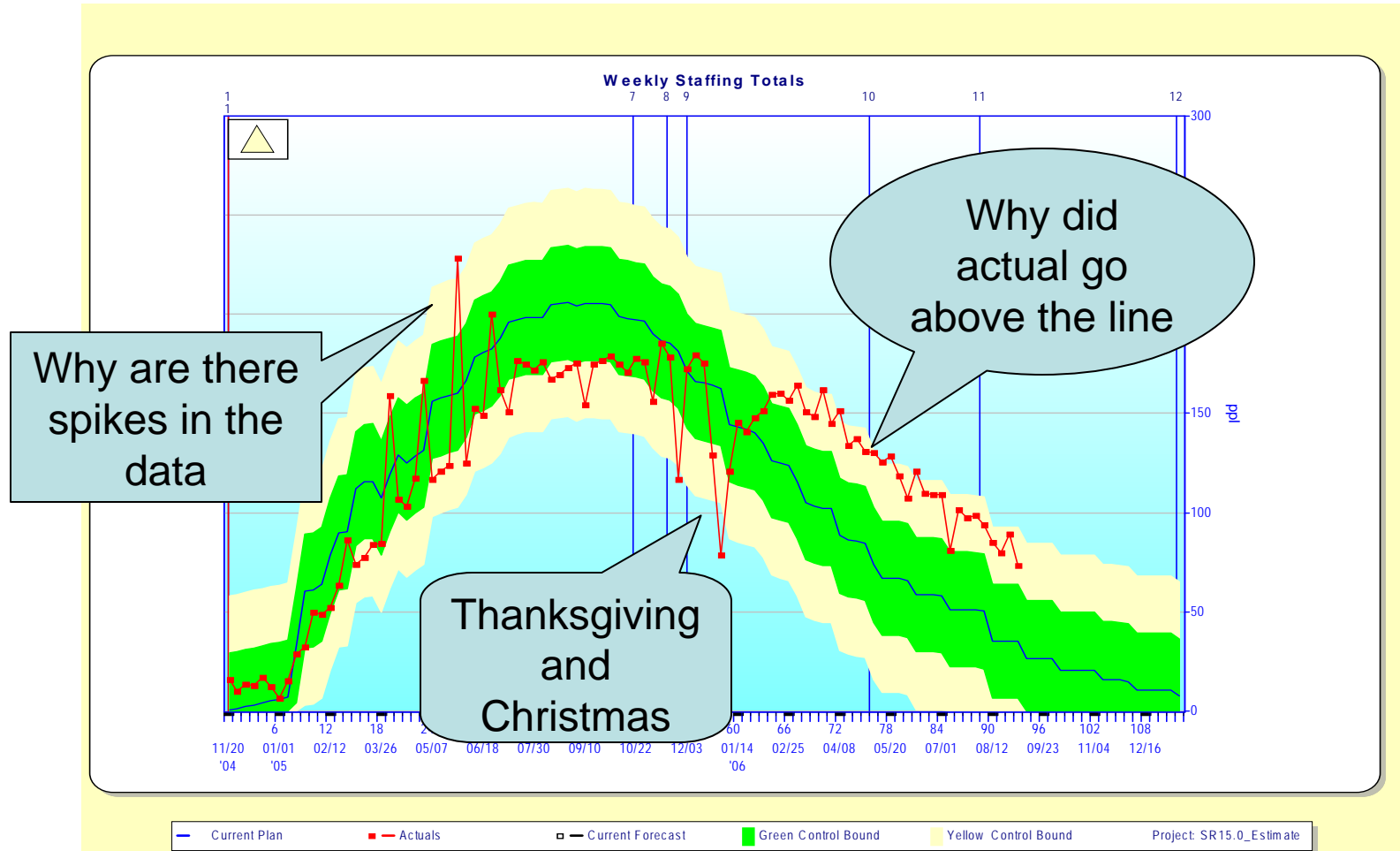
—●— Current Plan
 —■— Actuals
 —□— Current Forecast
 Green Control Bound
 Yellow Control Bound
 Project: Demo of SLIM Control

Understand your rulers



- Time Tracking is in Full Time Equivalent Staff Months
- Defects for my project was post unit test
- Product Development is source lines of code
 - How to count deleted code
 - How to count modified code
 - What is the real delta
- What is test execution

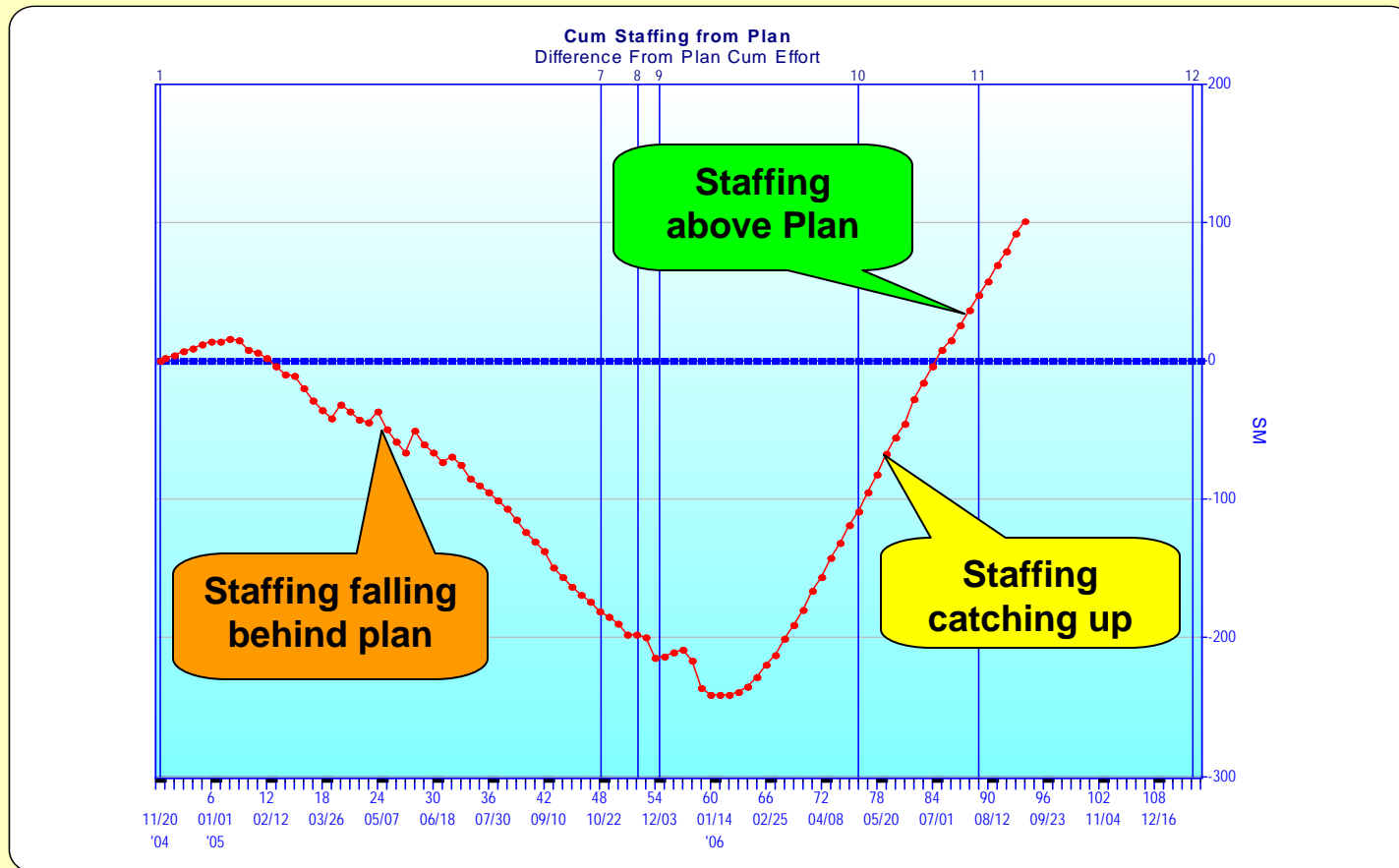
Weekly Time Tracking Data



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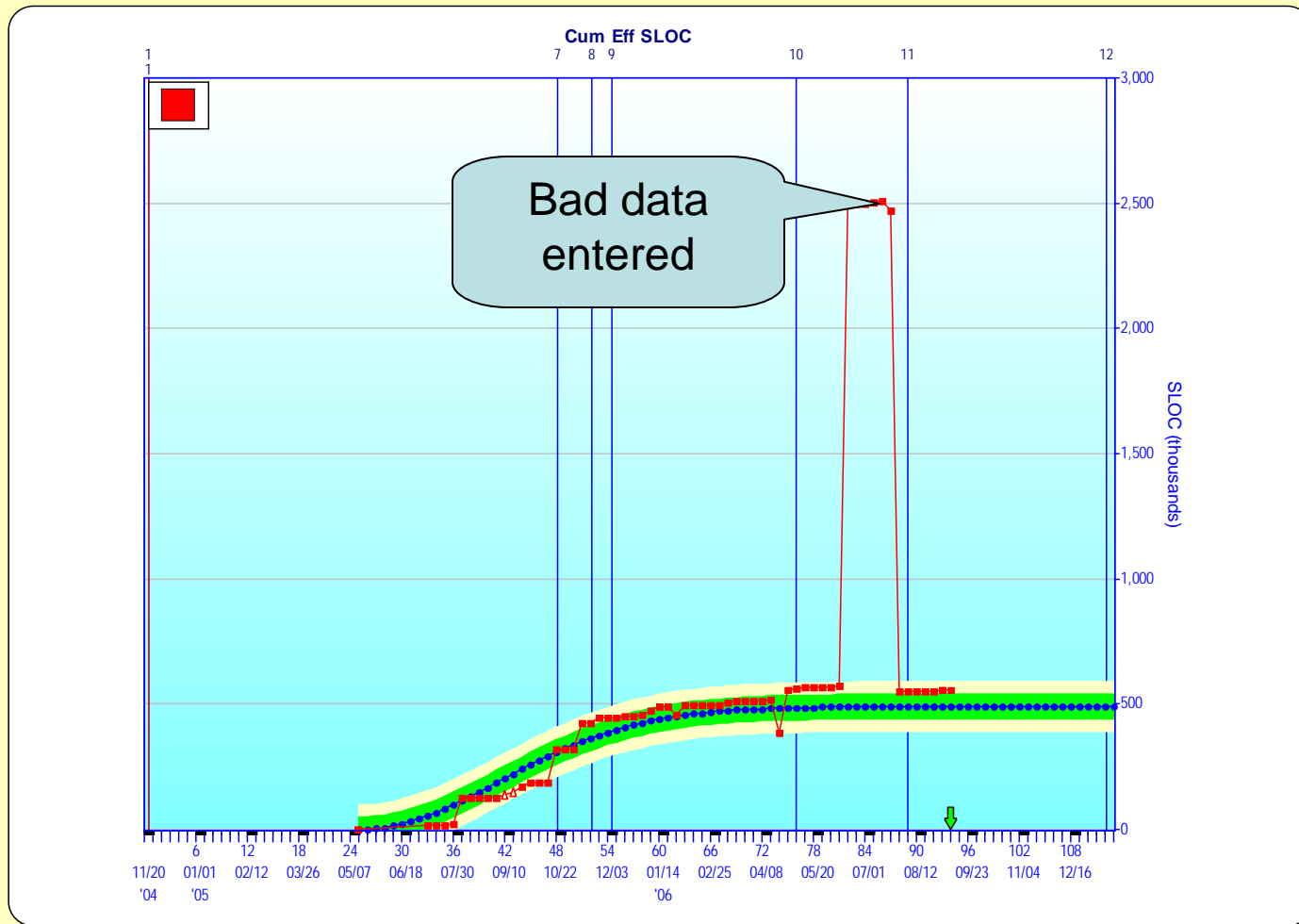
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Compare actual to plan time data



Project: Demo of SLIM Control

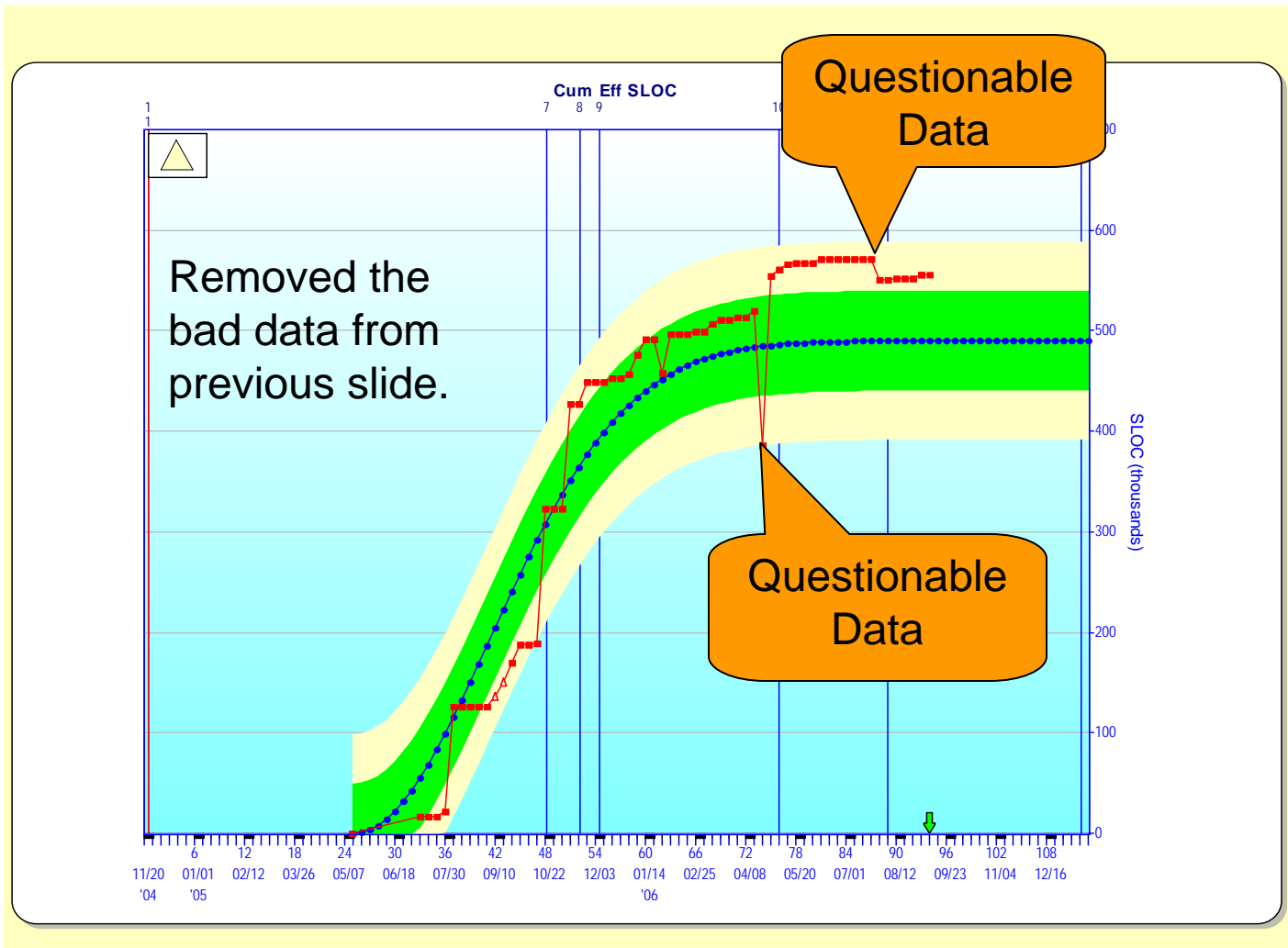
Product Construction



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Product Construction

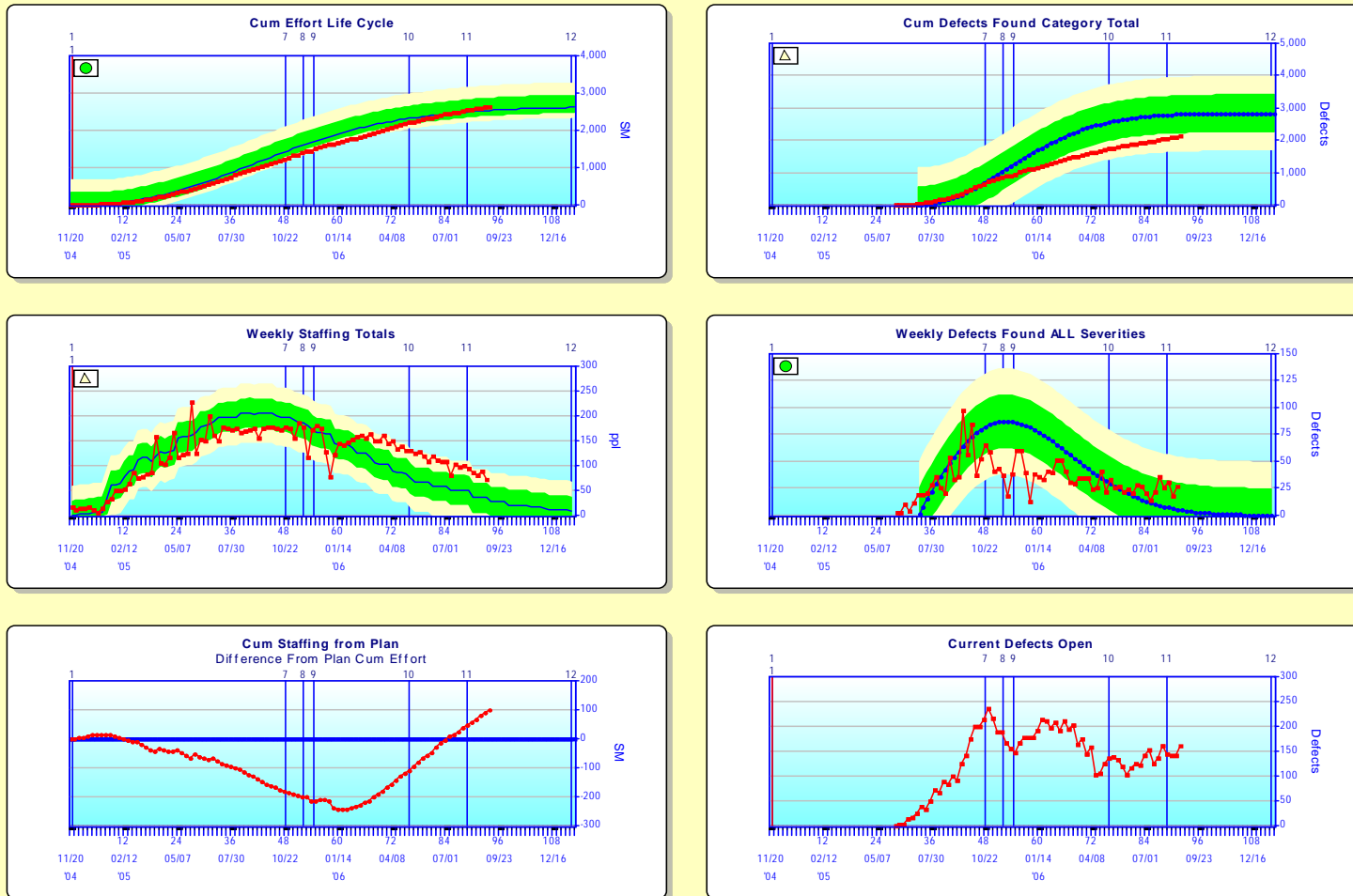


Main Screen Weekly View



PROCESS NETWORK

Six Up Chart - Demo of SLIM Control

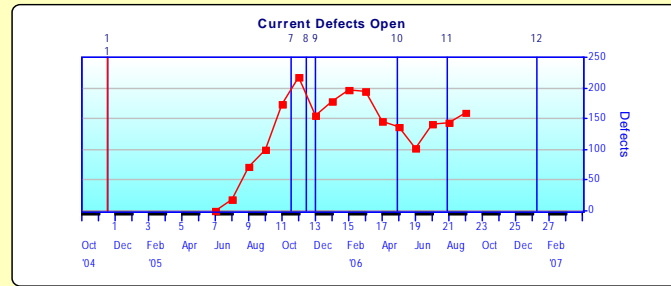
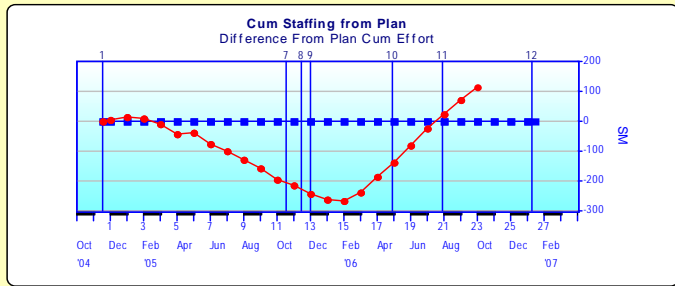
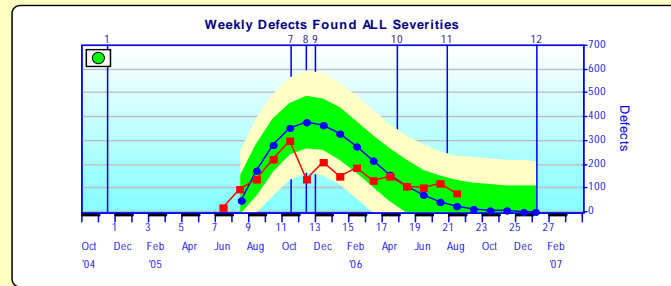
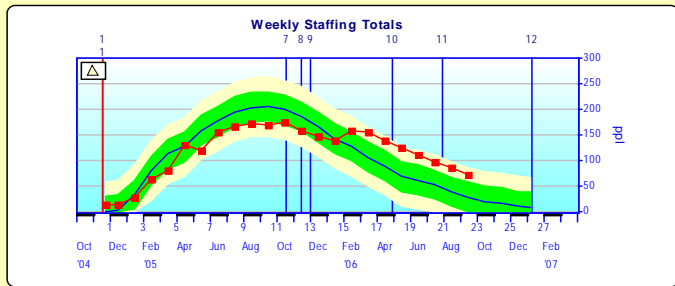
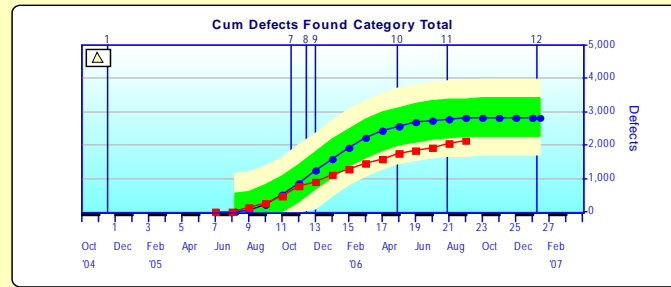
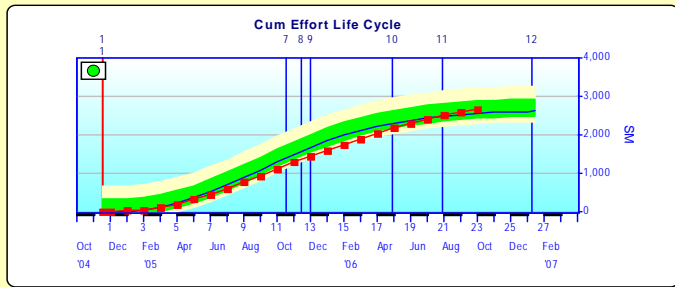


● Current Plan
■ Actuals
— Current Forecast
■ Green Control Bound
■ Yellow Control Bound
Project: Demo of SLIM Control

Same screen Monthly View



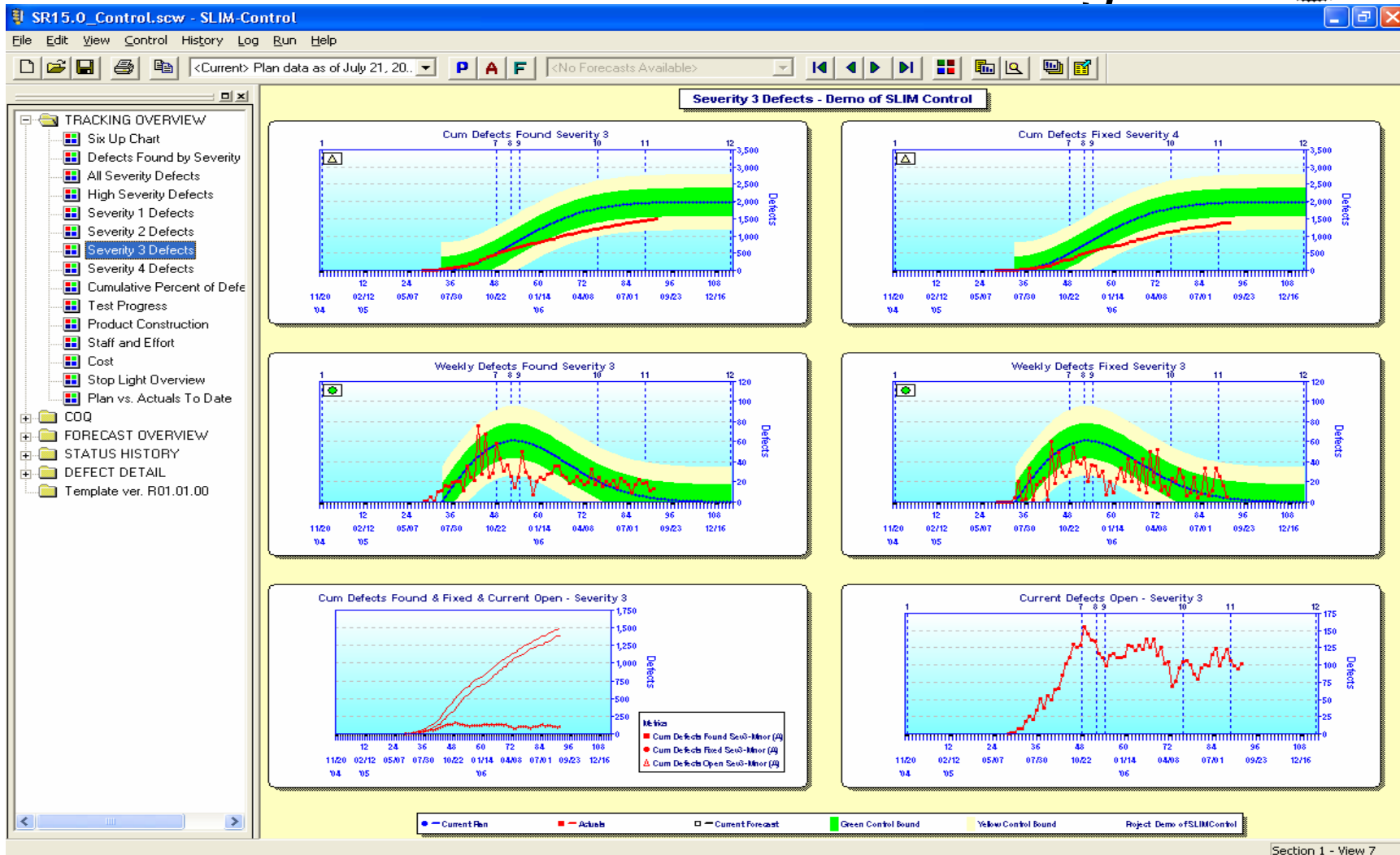
Six Up Chart - Demo for C-SPIN



● Current Plan
 ■ Actuals
 Current Forecast
 Green Control Bound
 Yellow Control Bound
 Project: Demo for C-SPIN

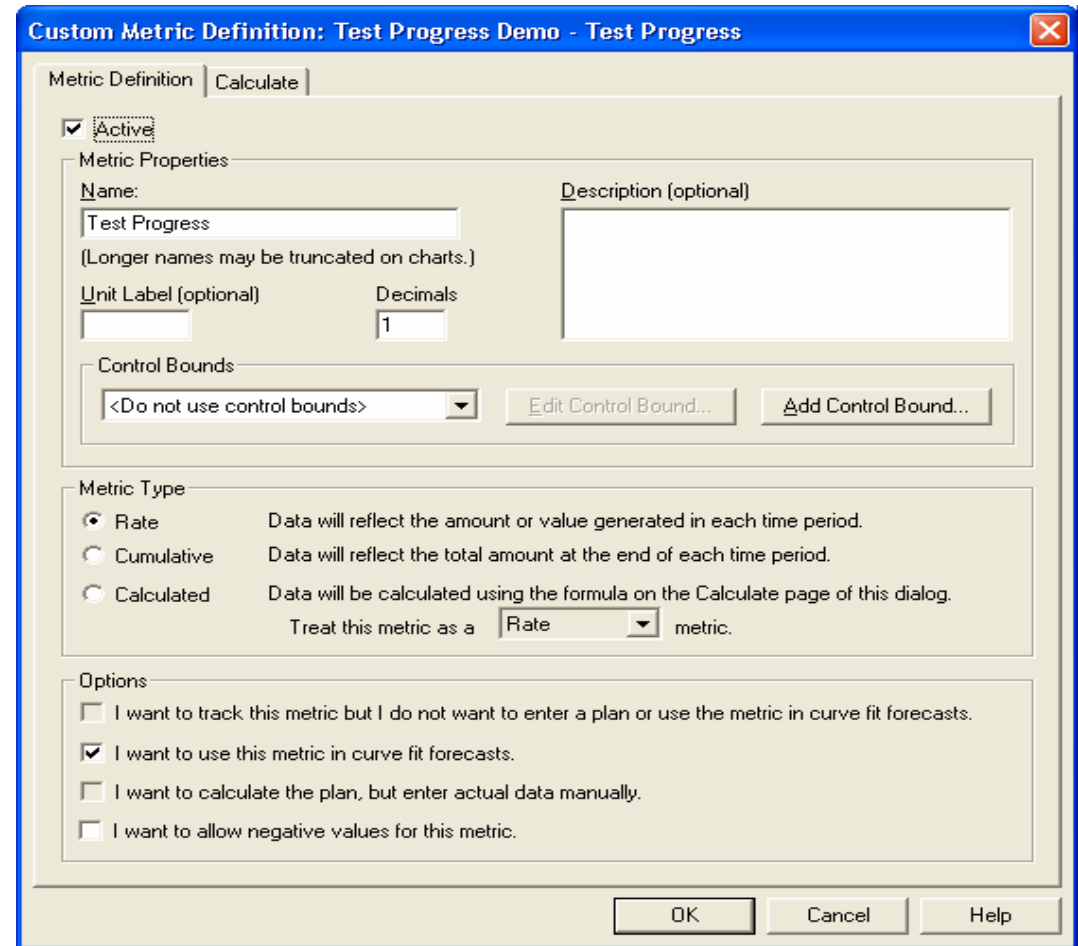
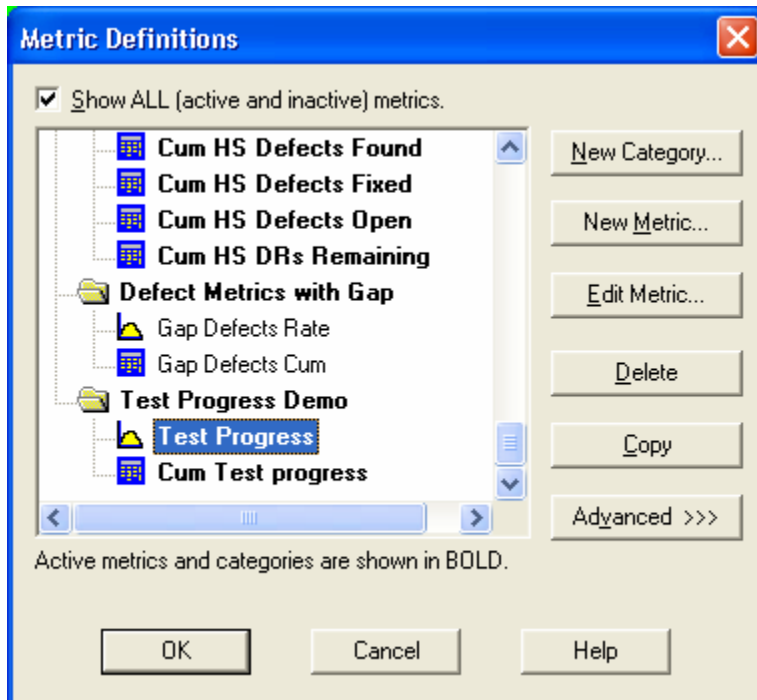
Defect Data

Arrivals on Left - Resolved on Right



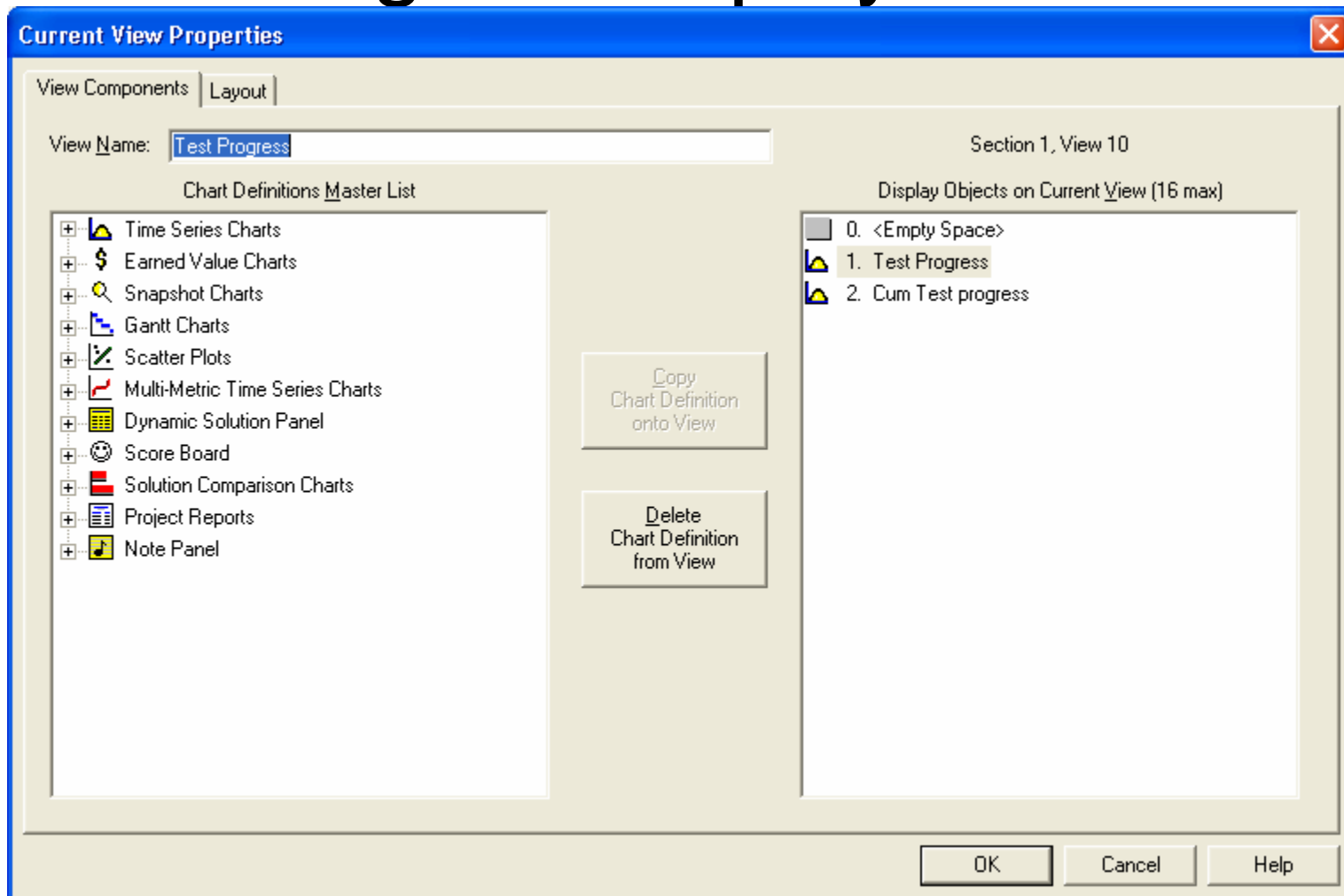
Creating Custom Metrics

Metric Definition



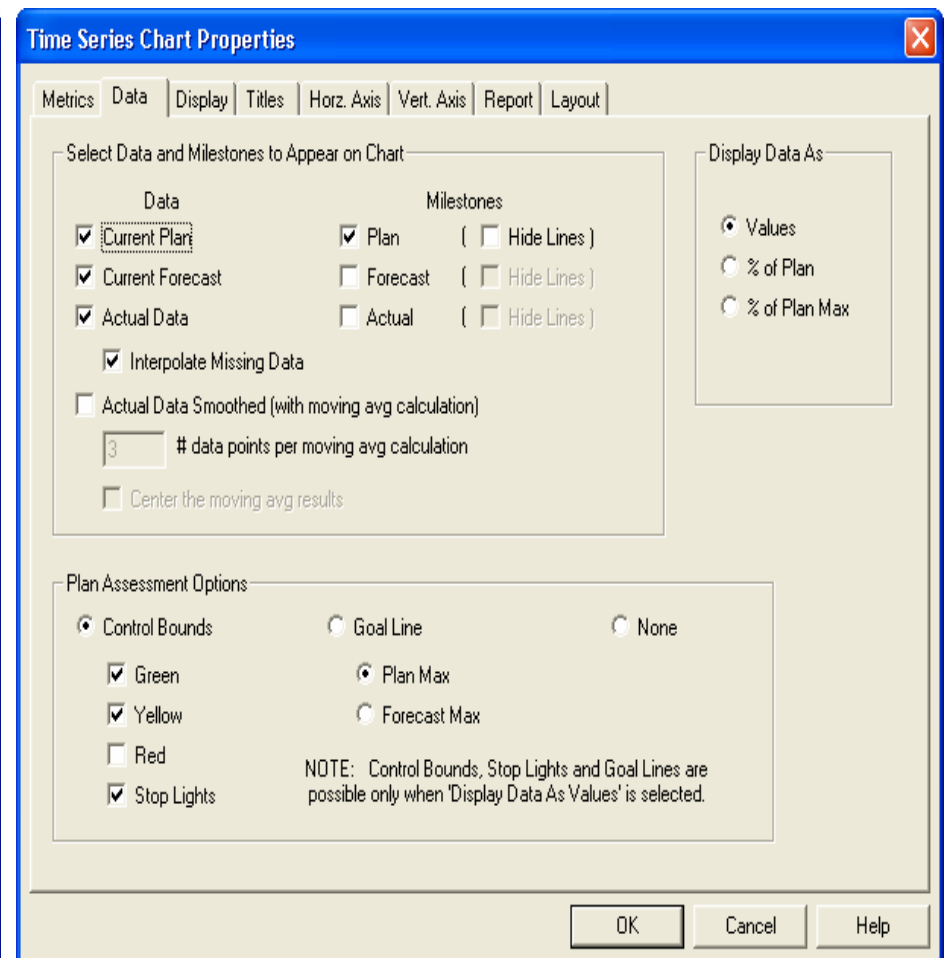
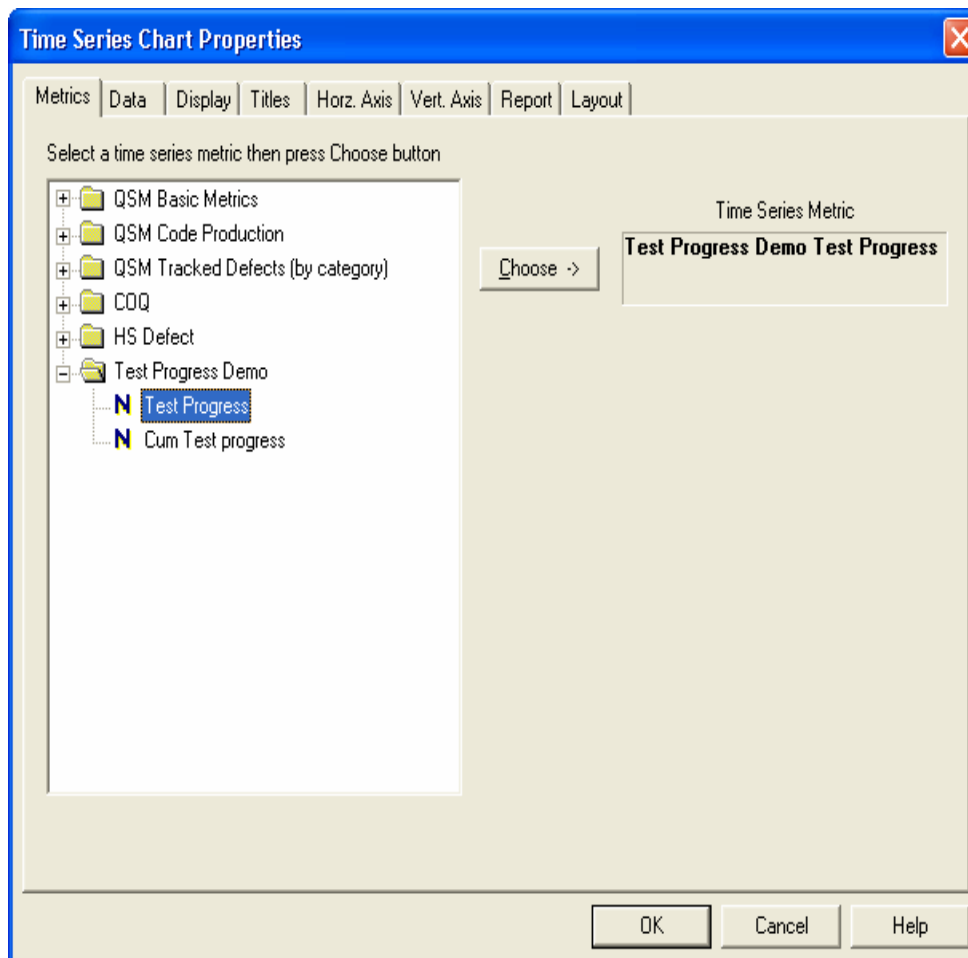
Creating Custom Metric

Creating the display chart



Creating Custom Metric

Creating the display chart



Creating Custom Metric Entering Plan Data




Plan Data Properties [X]

Phases | Milestones | Plan Assumptions | **Plan Data** | Accounting

Metric Name	01/07	01/14	01/21	01/28	02/04	02/11	02/18
Avg Staff (R&D)							
Avg Staff (D&T)	144.30	143.00	141.80	140.50	135.10	126.10	124.90
Avg Staff (CR)							
Test Progress	200.0	250.0	250.0	250.0	250.0	300.0	350.0

Week Ending 2/4/2006



Use this grid to enter the expected values for the indicated metrics. Only metrics that have a Custom metric profile will appear in this dialog.

Data may be exchanged with Excel using Cut, Copy and Paste operations.

You can use the mouse to increase or decrease the size of the columns.

OK Cancel Help

Creating Custom Metric Entering Actual Data



Actual Data Properties

Phases | Milestones | Metrics | Actual Data

Active Metrics

- Defects Found (Sev3-Minor)
- Defects Found (Sev2-Major)
- Defects Found (Sev1-Critical)
- Defects Fixed (Sev4-Other)
- Defects Fixed (Sev3-Minor)
- Defects Fixed (Sev2-Major)
- Defects Fixed (Sev1-Critical)
- Cum COQ %
- Cum COPQ %
- COQ (Creation)
- COQ (Prevention)
- COQ (Appraisal)
- COQ (Int Failure)
- COQ (Ext Failure)
- Test Progress**

Start Date
Plan Start: 11/14/2005 (Set as Milestone 8 - S.SI)
Actual Start: 1/1/2006

End Date
Plan End: 7/29/2006 (Set as Milestone 11 - S.FOA)
Actual End: 10/1/2006

Additional Information
No additional information.

ACTUAL

OK Cancel Help

Actual Data Properties

Phases | Milestones | Metrics | Actual Data

Metric Name	07/22	07/29	08/05	08/12	08/19	08/26	09/02
Cum COQ %	53.0	53.2	53.4	53.6	53.8	54.0	54
Cum COPQ %	20.8	21.1	21.3	21.5	21.7	21.9	22
COQ (Creation)	22.6	24.7	22.2	18.0	16.6	17.3	16
COQ (Prevention)	0.5	0.4	0.6	0.5	0.5	0.5	0
COQ (Appraisal)	32.6	28.2	26.9	26.6	20.0	25.4	20
COQ (Int Failure)	39.8	43.8	42.5	38.4	40.8	44.5	33
COQ (Ext Failure)	1.8	1.6	1.9	1.9	2.0	1.6	2
Test Progress	50.0	220.0	82.0	20.0	10.0	15.0	5

No data.
Week Ending 9/9/2006

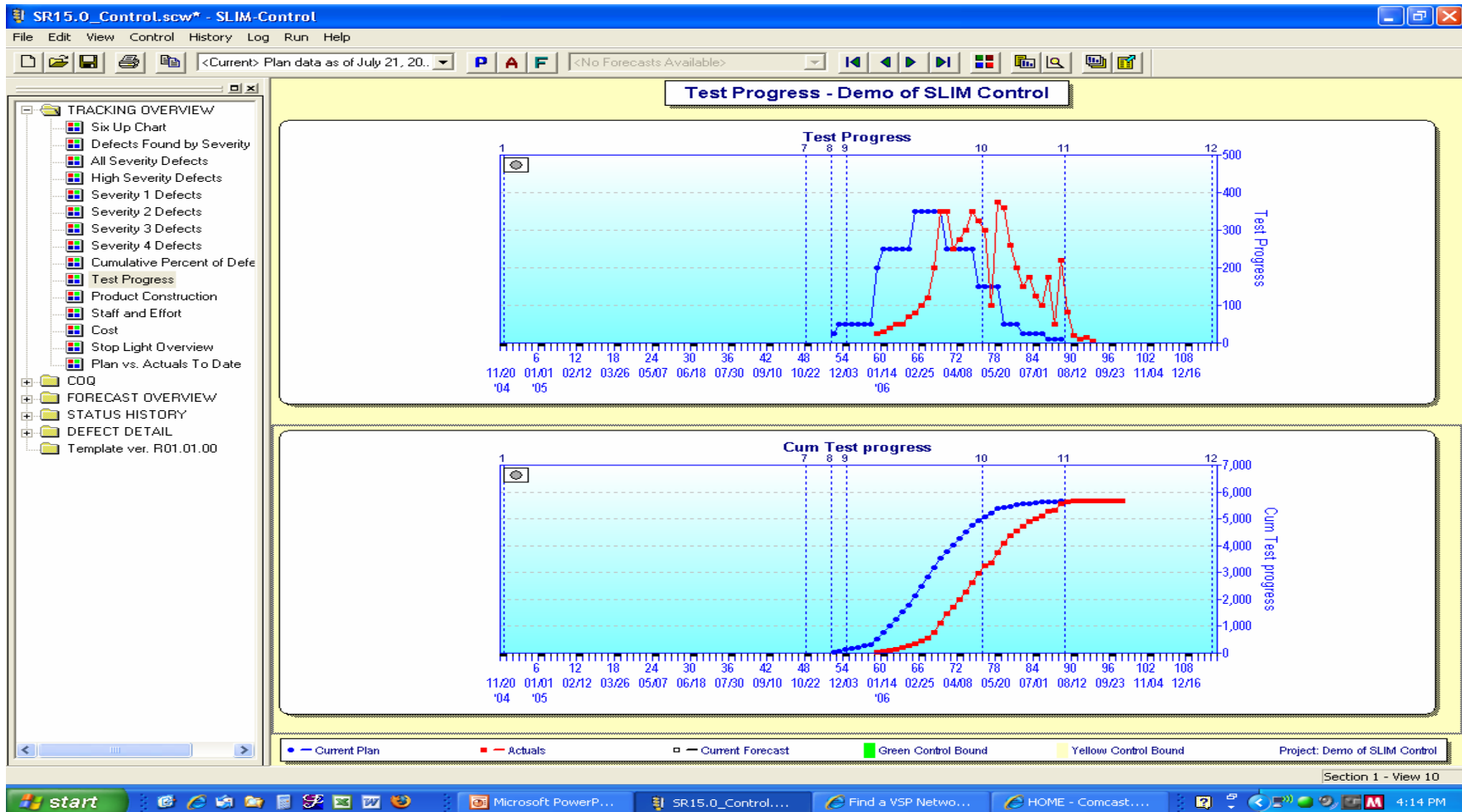
Notes for 09/09

ACTUAL

OK Cancel Help

Creating Custom Metric

What the graph looks like



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Recap of SLIM



- Overview of SLIM
- How SLIM fits into process system
- Quick Example on how to estimate
- Enhancements to SLIM Estimate
- Enhancements to SLIM Control
- Understand your software measurements



Questions?



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