



Engineering Workforce Management

Presented by
Adriene Allen - RG&E, Ginna Station
Rich Mark - Volian Enterprises Inc.

Ginna Nuclear Power Station

- Rochester, New York
- 490 Mega Watts
- Pressurized Water Reactor
- Base-load Power Generation



Highly-Regulated and Highly Visible

- Nuclear Regulatory Commission (NRC)
- Institute of Nuclear Power Operations (INPO)
- New York State – Utilities Commission (PSC)
- Security
 - 9/11 Impact

NRC Concerns

- **Appropriate Staffing**
 - Workload
 - Training / Certification
 - Resource Expertise
- **Complexity of Systems**
- **Public Safety**

Business Environment

- Reduced Workforce
- Increased Workload

Bottom Line - Work Smarter

- Tools and Technology
- Manage the Valuable Resources

- Engineering Work Management System

- Strategic Planning
- Budget Development
- Cost Management
- Resource Management
 - Scheduling
- Performance Appraisals
- Human Performance



System Design

- Client / Server
- MS Access Front-end
 - Menu-Driven
 - Drill Down Screens
- SQL Server Back-end
 - Data Download from CMIS
 - Identifying changes

Managing Engineering Tasks

- Quantity
- Complexity
- Cost
- Impact
- Skills
- Training
- Experience



Engineering Backlog

- > 1000 Action Reports
- ~ 50 Plant Change Requests
- ~ 150 Technical Service Requests
- ~ 75 Software Change Requests
- ~ 4000 Work Order Reviews
- Plant Support
- Regulatory Commitments

Range of Complexity / Cost / Impact

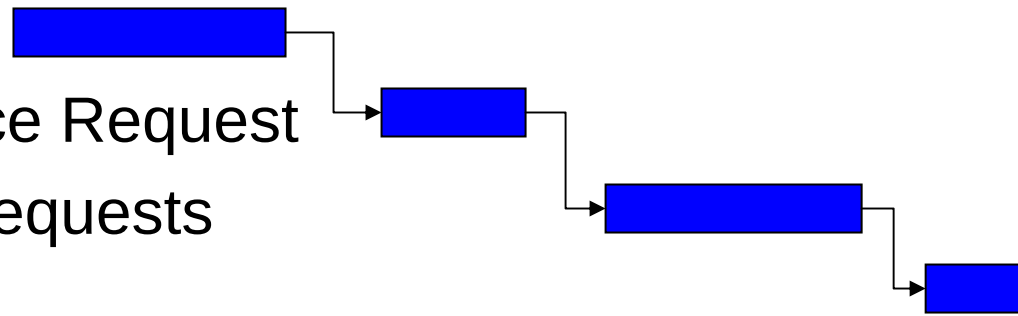
- Vessel Head Replacement (\$14 M)
- Plant Security Changes (\$\$\$\$)
- CMIS Replacement (\$300K)
- Remodeling (Varies)

Project Integration

- *Task Anarchy*

- Create Projects from related tasks

- Action Reports
 - Technical Service Request
 - Plant Change Requests
 - Work Orders



- Present Engineers with Consolidated Schedule / List of Tasks

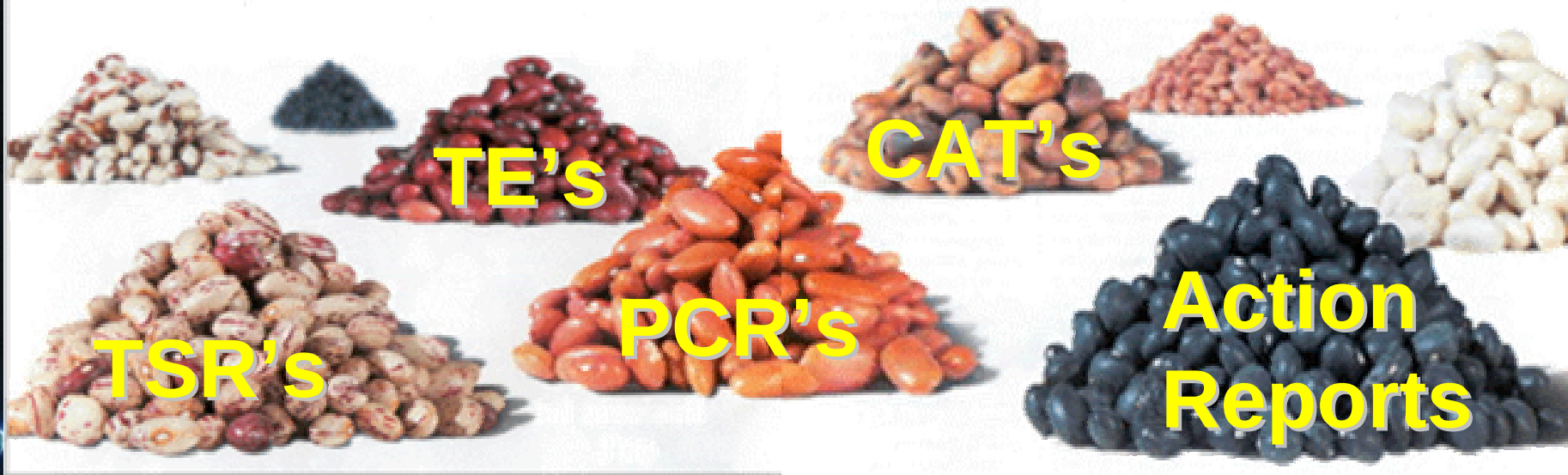
Engineering Task List

Sort by: Project, Document Number								
Project 5		Document Number						
Engineer		Role		Subject		Status	Hours	Start
							Duration	Finish
25146	★	TSR-2001-0184		INVESTIGATE REPLACEMENT OF CHARGING PUMP BELT VARIDRIVES WITH VARIABLE SPEED		In Process ▾	50	7/30/2002
BANKE, J		Evaluation		Will see Prairie Island setup when installed during the summer/fall of 2002. Frametome report has shown not				
26020		DUF-2001-0164		REPLACE AMF/CUNO FILTER WITH FRAM OIL FILTER ON CHARGING PUMPS		In Process ▾	10	10/1/2002
BANKE, J		Evaluation		Filter replaced on A and B chg pump, C chg pump will be changed out over the next three months.				
26200		DUF-2002-0201		USE OF STRONG ANION RESINS AT GINNA STATION		In Process ▾	10	7/1/2002
BANKE, J		Evaluation		TE 2001-0058 Rev 1 complete, still need to calculate resin loading to prevent excessive D/P.				
26796		ACTION-2002-1849		METALLIC NOISE FROM VARIDRIVE AREA OF C CHARGING PUMP		In Process ▾	10	11/2/2002
BANKE, J		Evaluation		Wait for shaft to be replaced per TE 2001-0058, will be done 10-30-03				
27708		BP-NE-2002-S02		System Walkdown 2002 for 02 - Reactor Coolant		Deferred ▾	10	7/1/2002
BANKE, J		Engr Support		Not performed while critical.				
28367		ACTION-2002-0926		RCS LEVEL INDICATION PROBLEMS DURING VACUUM FILL		In Process ▾	40	
BANKE, J		Evaluation		Will be purchasing new camlock fittings for 3/4 inch vacuum hose connections. Cam Lock fittings received.				
28573	★	ACTION-2002-1022		ENTRY INTO AP-RCP.1 DUE TO LOW SEAL LEAKOFF		In Process ▾	10	6/30/2002
BANKE, J		Evaluation		Will keep this open to track A RCP seal during fuel cycle. A RCP seal leakage appears normal right now at 2.2 gpm.				
28761	★	ACTION-2002-1134		RESEARCH CHARGING SYSTEM VIBRATIONS		In Process ▾	40	6/30/2002
BANKE, J		Evaluation		Will keep open to track chg system vibrations. Vibration data and summary to be presented by Frametome week.				

Bean Count

- *Present Manager's with a Bean Count*

WHAT TO COUNT?



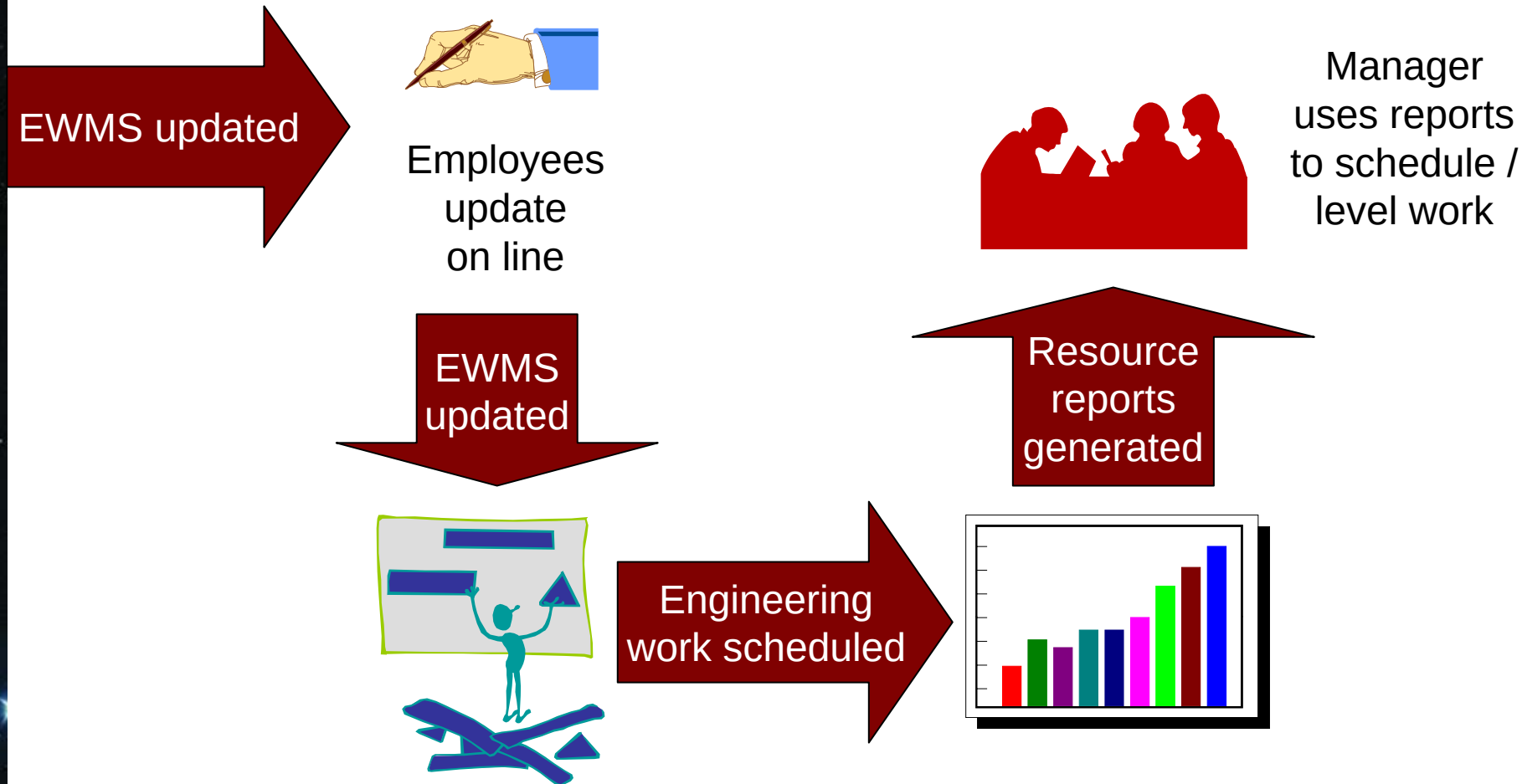
Manager View

<i>Tasks</i>											8/14/2003 9:58 am
Engineer:	PCR:	TSR:	TM:	AR:	EWR:	TE:	PREQ:	LI:	VTD:	CATS:	BP:
BANKE, J	1	2		11		1				1	1
BAUMAN, M											1
BERTHIAUME, L										1	
BISCHOPING, G		1		3			30	1			
BLACKALL, K				2						3	1
BLACKMAN, R				Double-click for detail							
BODINE, J										2	1
BURCHELL, M		1		2		1	2	1			2
BUTCAVAGE, A	2	1		2						1	
CAIN, G	2	4		4		1				1	1
COACHMAN, T				1							
CONA, K	3	1	1	9		1				1	1
CROWLEY, D	2		2	1						1	1
Totals	49	69	9	223		14	33	34		142	128

Importance of Living Data

- Availability
- Accessibility
- Ease of Use
- Minimal Training / Effort
- Garbage-In / Garbage-Out

Process Flow



Engineer Update

- **Status Includes**
 - Start Date / Finish Date
 - Duration (Remaining Duration)
 - Hours (Hours to Complete)
 - Comments

26796		ACTION-2002-1849	METALLIC NOISE FROM VARIDRIVE AREA OF C CHARGING PUMP		
BANKE, J		Evaluation			
Status		Hours	Start	Duration	Finish
In Process ▼		10	11/2/2002	8	10/30/2003
Wait for shaft to be replaced per TE 2001-0058, will be done 10-30-03					

Primavera Interface

- Automated Process Creates P3 Project
 - 100 Resources
 - 4000 Activities
 - Individual Schedules
 - Resource Histograms

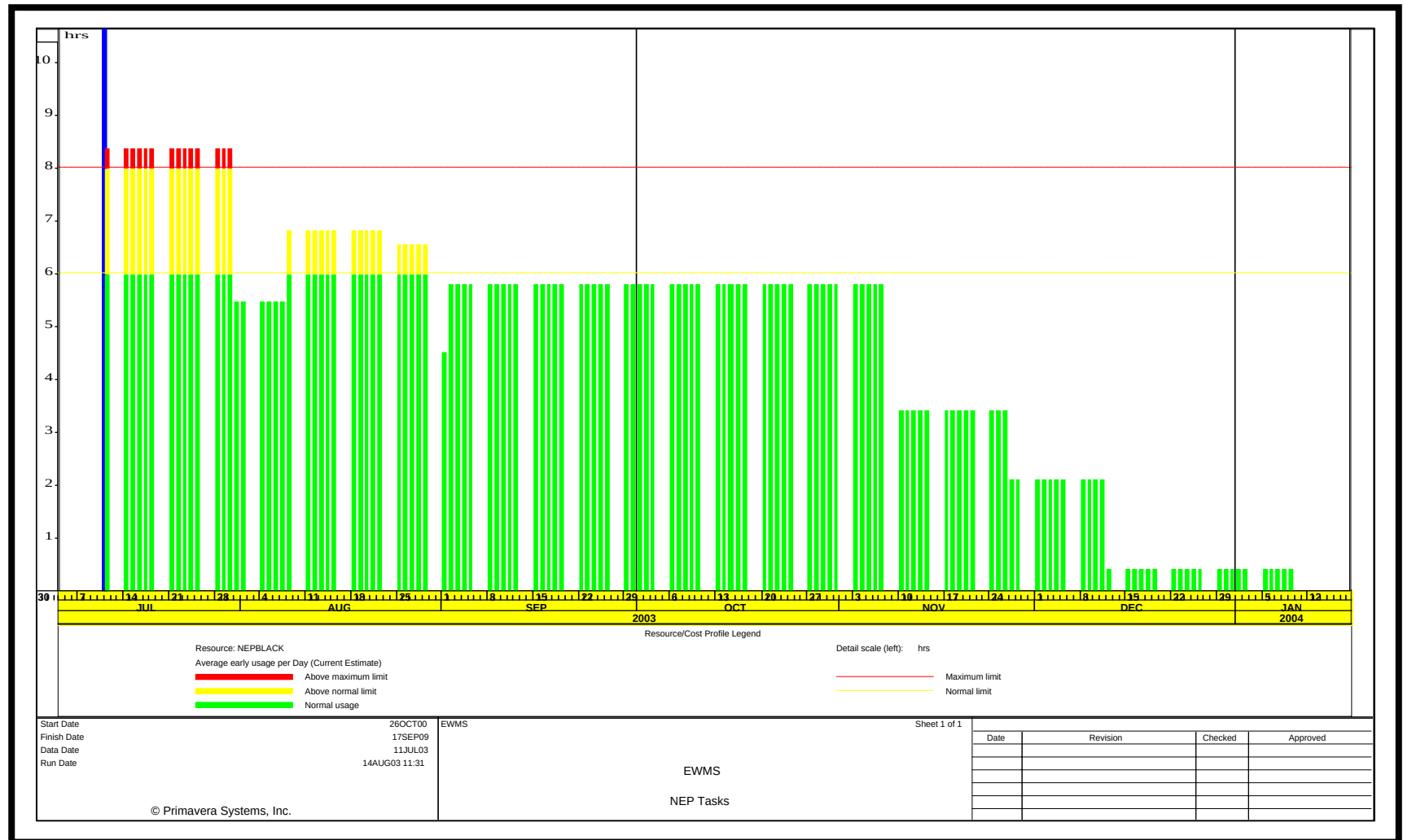
Automated Process

- **Two Step Process**
 - Step 1 - Translates EWMS Tables to Pseudo P3 Tables
 - Step 2 - Pumps Data from Pseudo P3 Tables to Primavera

- **Process Creates**
 - Activity Codes Dictionary
 - Resource Dictionary
 - Hierarchy of Project Related Tasks
 - Project Hammock
 - Activities for Tasks and Sub-Tasks
 - Relationships
 - Log Items From EWMS Comments


PRIMAVERA®

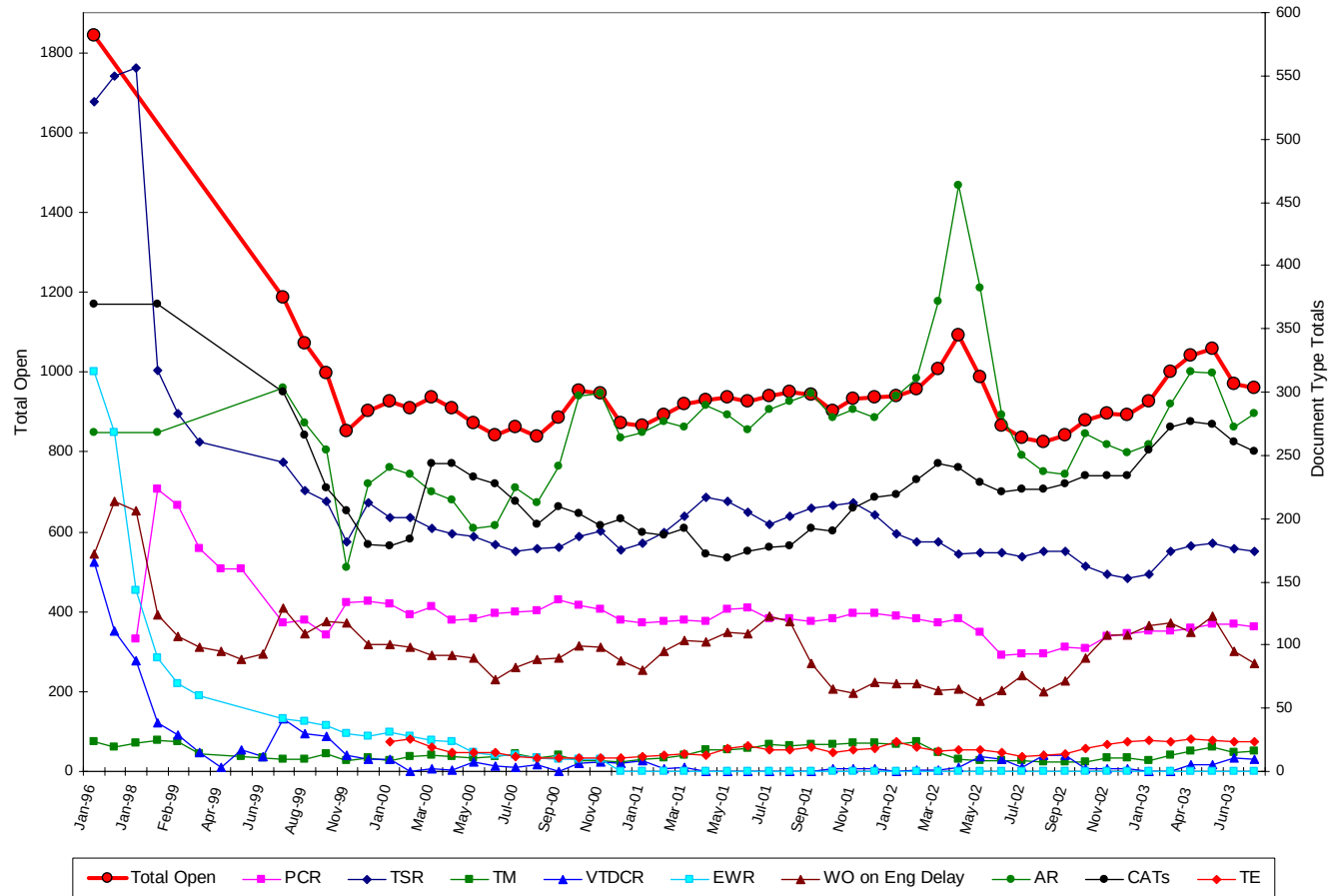
P3 Histogram



Results

Open Engineering Documents

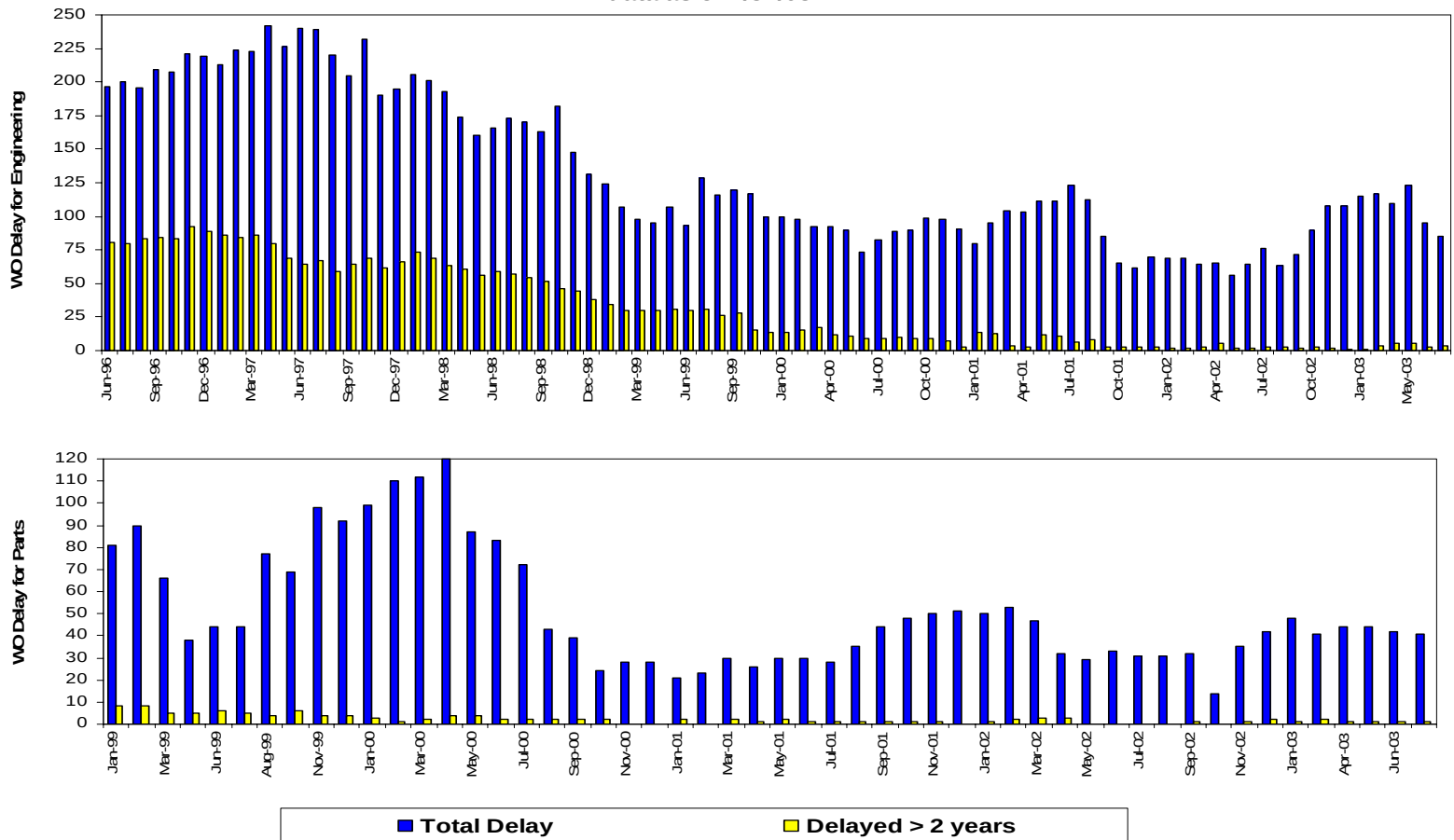
data as of 7/31/03



Results

Delayed Work Orders

data as of 7/31/03



Future Directions

- Adding to Project Plan
 - Actuals
 - Material Costs
- Weighting of Tasks for Performance Appraisals
 - Priority / Value
 - Relative Effort

*Thanks for your participation
and attention!*