



Performance Metrics/Indicators

Prepared for NASA/OPM
by BDM Federal, Inc.

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Training Module Objectives

- **Understand the Definition of Performance Metrics/Indicators**
- **Understand the Current NASA Contractor Metrics Program**
- **Acquire an Awareness of In-plant Metrics for Government Surveillance**



Outline

- **Overview**
 - Definition
 - Purpose
- **NASA Contractor Metrics**
- **Performance Indicators**
 - Key Contractor Surveillance Areas of Interest
 - Sources of Metrics
 - Government Use/Analysis
- **Examples of Performance Indicators**



Overview

- **Definition of Performance Metrics**
- **Purpose of Performance Metrics**



Overview

Definition of Performance Metrics

- **Metric:** “A standard of measurement” (Webster’s Collegiate Dictionary)
- **Contractor Metrics:** “The set of data which provides specific measures of contractor performance” (NHB 5340.4A)
- **Management Indicator:** “Workload or performance information used...to determine if further review and action are necessary...” (AFCMDR 178-13)
- **An Example: A Sales Chart**





Overview

Purpose of Performance Metrics

- Provide a Baseline
- Provide Managers with Effective Indicators to Use in Evaluating Contractor Operations
- Provide Effective Indicators to Evaluate Systematic Techniques
- Predict Potential Trouble Areas and Take Timely Preventative Measures
- Permit Effective Utilization of Government Resources





Summary of Overview

- **Performance Metrics and Indicators Are any Information Collected and Used to Track Contractor Performance**
- **NASA Uses this Information to Trigger Preventive and Corrective Actions in Trouble Areas and to Make Better Use of its Resources**



NASA Contractor Metrics Program

- **The NASA Contractor Metrics Program**
- **The Current Policy in Brief**
- **Status of Metrics Policy Revision**
- **An Example**



NASA Contractor Metrics Program

- **Objective: Provide NASA Managers Sufficient Information to Monitor Contractor Performance**
- **Policy Is Being Revised:**
 - **Drafted by NHB 2340.4A, Contractor Metrics Handbook**
 - **New Draft to Be Determined**



NASA Contractor Metrics Program

The Current Policy in Brief

- **A System of Metrics Reporting Will Be Used on Selected NASA Contracts**
 - **NASA Contracts Will Be Selectively Chosen for Reporting Metrics**
 - **Existing Contractor Information Systems Will Be Employed**
 - **Performance Data Will Be Available through Contract Requirements**
- **Products**
 - **Set of Current Contractor Performance Data**
 - **Periodic Feedback Metric Report to Contractor**
- **Metric Categories Identified**



Status of Metrics Policy Revision

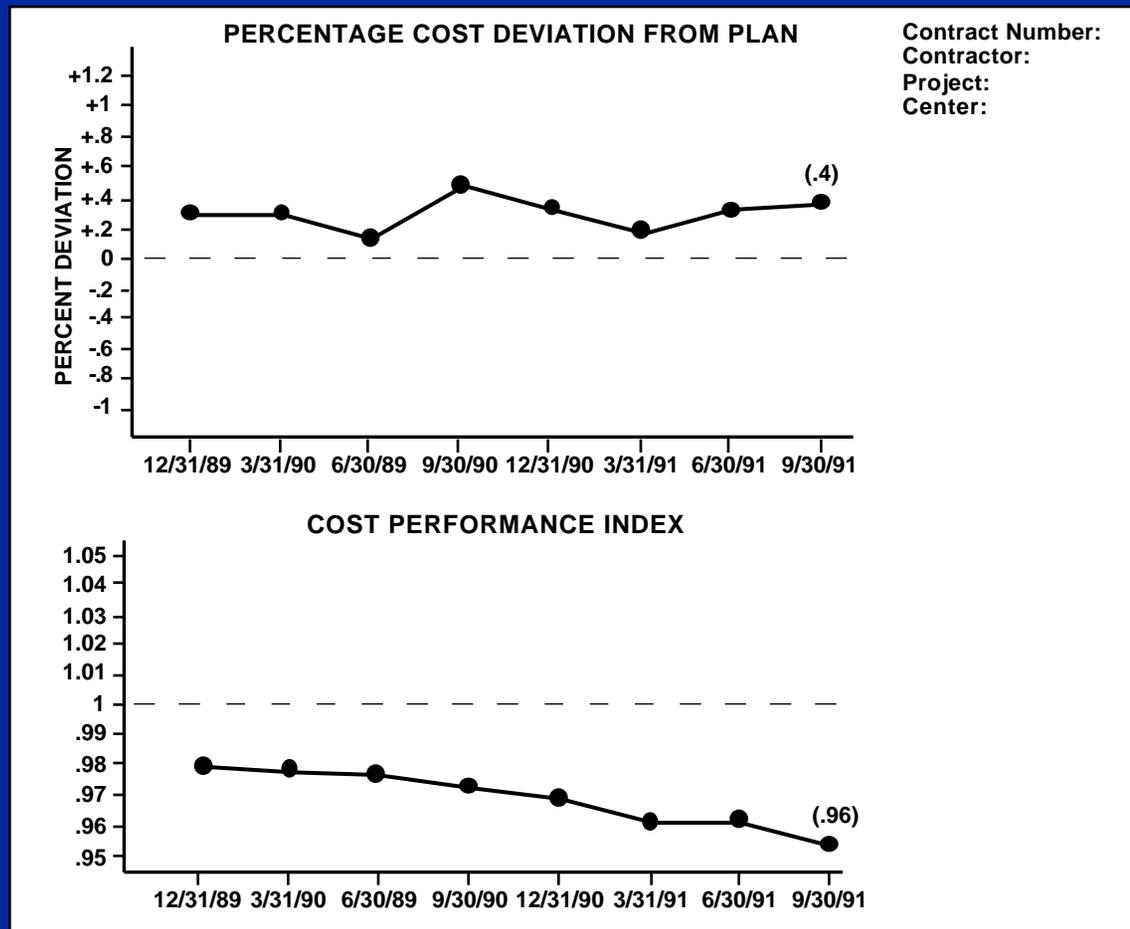
- **Revised Policy In-work**
- **Draft of NHB-2340.4A in Progress**
- **NHB 2340.4A Will Be Completely Revised**
- **New Thinking (?)**



NASA Contractor Metrics Program

Sample NASA Cost Metric Charts

- NHB 2340.4A Example 1D





Contractor Metrics Summary

- **NASA Contractor Metrics Program Is Detailed in NHB 2340.4A**
 - **It Provides Contractor Performance Information to NASA Managers**
- **Contractor Metrics Reporting Enhances Communication without Overtaxing Contract and Government Resources**
 - **Contractor Provides Current Data Used in Contract Fulfillment**
 - **NASA Reports Back Concerns and Perspectives Based on the Same Data**
- **NHB 2340.4A Is Currently Being Revised**
 - **Draft Due March 1996**



Performance Indicators

- **Key Contractor Surveillance Areas of Interest**
- **Sources of Metrics**
- **Government Use/Analysis**
- **Performance Indicator Examples**



Key Contractor Surveillance Areas of Interest

Key Points to Consider

- **Program/Project**
 - **Contract Type and Requirements**
 - **Areas of Risk or Special Interest**
 - **Available Government Resources**

- **Contractor Environment**
 - **Contractor Past Performance**
 - **Existing Contractor Metrics/Tracking Systems**
 - **Contractor Project Management Structure**



Key Contractor Surveillance Areas of Interest

Key Points to Consider (Concluded)

- **Metrics Management**
 - **Diligently Select Metrics to Track – Too Much Is Not Always Best**
 - **Validation of Indicator/Metric Data**
 - **Timeliness and Frequency of Samples**
 - **Look for “Big Picture” Metrics – Low-level Details May Be Just a Snapshot**
 - **Correlation of Indicators**
- **Others**

Key Contractor Surveillance Areas of Interest
Typical Key NASA Areas



- **Program Management**
- **Contract Management**
- **Quality Assurance**
- **Engineering**
- **Manufacturing Operations**

Program Management



- **Key Area for Overall Contractor Program Activities**
 - **Management Planning, Scheduling, and Integration**
 - **Functional Coordination**
 - **Central Communications**
 - **Program Control**
 - **Project Resource Planning and Execution**



Typical Key NASA Areas

Program Management (Concluded)

- **Elements Program Indicators Should Demonstrate**
 - **Progress against Defined Baseline**
 - **Posture of Cost, Schedule, and Technical Requirements of Program**
 - **Key Program Milestones and Events**
 - **Risk Areas and Critical Path**
 - **Current Problem Areas**
 - **Corrective and Preventive Action Plans and Status**
 - **Customer Feedback**

Contract Management



- **Key Area for Contract Activities**
 - **Focal Point for Contract Matters**
 - **Point of Contact for Government Contracting Officer**
 - **Management of Estimating/Pricing Functions**
 - **Management of Government Furnished Property/Equipment/Facilities**



Typical Key NASA Areas

Contract Management (Concluded)

- **Elements Contract Indicators Should Demonstrate**
 - **Contract Administrative Status**
 - **Responsiveness and Timeliness to Government Contract Matters**
 - **Contract Financial Status**
 - **Business Strength**
 - **Project Priority within Company**

Typical Key NASA Areas
Quality Assurance



- **Key Area for Quality Assurance Activities**
 - **Focal Point for Quality System**
 - **Responsible for Quality Planning**
 - **Point of Contact for Mandatory Government Inspections (MGIs)**
 - **Management of Non-conforming Material**
 - **Focus for Hardware/Software Quality (“As Designed” Versus “As Built”)**



Typical Key NASA Areas

Quality Assurance (Concluded)

- **Elements Quality Indicators Should Demonstrate**
 - **Project Quality Status**
 - **Number of Defects**
 - **Scrap, Rework, and Repair**
 - **Inspection Results and Quality Escapes**
 - **Component Defect Rates**
 - **Corrective and Preventive Action Planning and Close-out**
 - **Supplier Quality**

Typical Key NASA Areas

Engineering



- **Key Area for Engineering Activities**
 - **Focal Point for Engineering System**
 - **Responsible for Design**
 - **Focus for Configuration Management**
 - **Responsible for Technical Analyses**
 - **Focal Point for Research and Development**
 - **Focal Point for Project Design Events**
 - **Responsible for Technical Requirements Flowdown**
 - **Responsible for Failure Analysis as well as Corrective and Preventive Action**

Engineering (Continued)



- **Elements Engineering Indicators Should Demonstrate**
 - **Design Status and Maturity**
 - **Drawing/Specification Status**
 - **Test Results**
 - **Design Review Readiness and Status**
 - **Progress of Internal Design Milestones**
 - **Traceability**
 - **Test Anomaly Closeout Status**
 - **Traceability**
 - **Test Anomaly Close-out Status**



Typical Key NASA Areas

Engineering (Concluded)

- **Elements Engineering Indicators Should Demonstrate (Concluded)**
 - **Configuration Status**
 - **Timeliness of Drawing Releases**
 - **Number of Drawing Changes and Errors**
 - **Timeliness of Failures Analysis Close-out**



Typical Key NASA Areas

Manufacturing Operations

- **Key Area for Manufacturing Activities**
 - **Focal Point for Manufacturing System**
 - **Responsible for Production and Delivery of Hardware/ Test End Items**
 - **Focus for Productivity Issues**
 - **Focal Point for Advanced Manufacturing Concepts and Capability**



Typical Key NASA Areas

Manufacturing Operations (Concluded)

- **Elements Manufacturing Indicators Should Demonstrate**
 - **Production Status**
 - **Hardware Delivery versus Contract Schedule**
 - **Tooling and Fixture Readiness and Status**
 - **Efficiency of Manufacturing Labor/Overhead**
 - **Performance Index**
 - **Labor Variations versus Standards**
 - **Project Component Yield Rates/Capability**



Summary of Typical Key NASA Areas

- **Project Management**
 - Implements Functional Coordination and Resource Planning
 - Metrics Indicate Critical Path, Risk Milestones, and Progress
- **Contract Management**
 - Responsible for Contract Matters, Estimating/Pricing, GFE Management
 - Metrics Indicate Contract Administrative and Financial Status, Response to Government Contract Matters, Business Strength, Project Priority
- **Quality Assurance**
 - Responsible for Quality Systems and Planning, Mandatory Inspections, Non-conforming Materials
 - Metrics Indicate Project and Supplier Quality Status, Corrective Action Planning and Status, Inspection Results, Defect Rates
- **Engineering**
 - Focal Point for Engineering Systems, Configuration Management, Research and Development
 - Metrics Should Indicate Design Status and Maturity, Configuration Status, Failure Analysis, Close-out Timeliness
- **Manufacturing**
 - Provides Focus for Productivity Issues, Advanced Manufacturing, Production, and Delivery of Hardware



Performance Indicators **Sources of Metrics**

- **Contractor**
- **Contract Required**
- **Operations**
- **Individually Created**

Sources of Metrics

Contractor



- **Most Ready Source of Metrics**
 - Immediately Available
 - Contractor's Real-time Results
 - Comprehensive Raw Data
 - It's What the Contractor Uses
- **Possible In-plant Sources**
 - Project Generated Data
 - Management System Data
 - Internal Management Data



Sources of Metrics

Contract Required

- **Formal Government Source of Metrics**
 - Always Available to the Government (It's Government Data)
 - Results are Usually for a Period (Often a Top-level Perspective and Analysis)
 - It's What the Contractor Commits to
- **Possible In-plant Sources**
 - Contract Line Item Distribution (or PO)
 - Courtesy Copy from Contractor

Sources of Metrics

Operations



- **The Final Test**
 - **Project Product in Mission Environment**
 - **Project Results by Government Use**
 - **System-level Performance Data**
- **Possible Sources**
 - **Operation/Mission Reports**
 - **Contractor Post-mission Analysis (or PO)**
 - **Contractor Courtesy Copy of Mission Report**



Sources of Metrics

Individually Created

- **Tailored Perspective**
 - Meet Specific Need (Trend or One Time)
 - Independent View Point
 - Complete Missing Information
- **Possible In-plant Sources**
 - You Create the Metric
 - NASA Resident Office Information
 - DCMC Information

Performance Indicators
Government Use/Analysis



- **Contractor Performance Surveillance**
- **Contractor Past Performance**
- **Tips on Use and Analysis**

Contractor Performance Surveillance



- **Support Verification of Contract Requirements**
- **Trend Cost, Schedule, and Technical Performance**
- **Facilitate Identification of Potential Project Problems**
- **Support Validation of Corrective Action**
- **Permit Integration of Project Overall Posture**
- **Provides Government Contract Supporting Data**

Government Use/Analysis
Contractor Past Performance



- **Establishes History of Performance**
- **Permits Competitive Comparison (Contract Data)**
- **Provides Valuable Source of Information on Future Project Situations**
- **Provides Source of Lessons Learned**

Tips on Use and Analysis



- **Establish a Set of Metrics:**
 - **Determine Needed Metrics:**
 - **Keep to Manageable Size**
 - **Select “Big Picture” Indicators**
 - **Select Wide Range - Cover All Areas**
 - **Establish Distribution Sources**
 - **Set-up Simple, but Consistent Bookkeeping**



Tips on Use and Analysis (Continued)

- **Validate Metrics**
 - **It's Best to Baseline**
 - **Periodically, Probe Metric for Accuracy**
 - **Correlate Several Metrics for Consistency**
 - **Conduct Independent Assessments**

Tips on Use and Analysis (Concluded)



- **Review Metrics Data with Project Office and Contractor**
 - Establish a Review Mechanism
 - Request Contractor Rationale for Glitches or Adverse Trends
 - Establish and Review Corrective Action
- **Take Action**
 - Understand Available Remedies
 - Initiate Request for Corrective Action
 - Execute Remedy



Summary of Government Use/Analysis

- **Support Contract Performance Surveillance such as:**
 - Verification of Contract Requirements
 - Identification of Potential Problems
 - Support of Corrective Action
- **Contractor Past Performance**
 - Establish Performance History and Project Projection Basis
- **Establish a Set of Metrics**
 - Simple, Consistent Bookkeeping
 - Limited Set of Indicators
 - Validated Metrics
- **Review Metrics Data with Project Office and Contractor**
- **Take Action**



Examples of Performance Indicators

- **Project Management**
- **Contract Management**
- **Quality Assurance**
- **Engineering**
- **Manufacturing Operations**



Examples of Performance Indicators

Project Management Examples

- **Program Metrics**
 - Sample 1
 - Sample 2
- **Mission Data**



Project Management Examples

Program Metrics Sample 1

ASSESSMENT OF CONTRACTOR OPERATIONS MANUFACTURING DIVISION

FUNCTION	1991				1992							
	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG
PRODUCT INTEGRITY	Marginal	Marginal	Marginal	Satisfactory	Getting Worse	Getting Worse	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory
QUALITY ASSURANCE	Marginal	Marginal	Marginal	Unsatisfactory	Unsatisfactory	Getting Better	Getting Worse	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory
PROGRAM MANAGEMENT	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Getting Worse	Getting Worse	Satisfactory	Satisfactory	Satisfactory	Satisfactory
SYSTEM ENGINEERING	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory
MANUFACTURING	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Marginal	Getting Worse
CONTRACT MANAGEMENT	Satisfactory	Satisfactory	Satisfactory	Getting Worse	Getting Worse	Getting Worse	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory	Satisfactory

GETTING BETTER
 GETTING WORSE
 SATISFACTORY
 MARGINAL
 UNSATISFACTORY

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Project Management Examples

Program Metrics Sample 2

- STRONG
- MEDIUM
- WEAK
- NONE

	LAUNCH ISSUES		ENGINE SYSTEMS PERFORMANCE		ENGINE SYSTEMS DEPENDABILITY		ENGINE SYSTEMS DURABILITY	CANNIBALIZATION	QUALITY							SAFETY	
	TECHNICAL ISSUES TO LEVEL 1	LAUNCH DELAYS	IN FLIGHT ANOMALY (1FA)	COMPONENT REPLACED AFTER ENGINE INSTALL	TEST AND UNPLAN; ENGINE SHOP REPLACED	COMPONENTS REPLACED; INSPECT, FOR CAUSE REPAIR, AND REPLACE	COMPONENT RELOCATIONS CANNIBALIZATION	RELIABILITY	COST OF SCRAP (4 CHARTS)	MANUFACTURING UCR ESCAPES	DARs/LRU (6 CHARTS)	ACCEPTANCE TEST GREEN RUN FIRST PASS SUCCESS (2 CHARTS)	NCs/MRS/1000 HRs AND UCR TREND (17 CHARTS)	REWORK/REPAIR COST PER 1000 HRs AND PER UNIT (7 CHARTS)	SCRAP COST (2 CHARTS)	HARDWARE MISHAPS/MONTH	OSHA REPORTABLES
SECTION (PAGE)	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
A PERFORMANCE	WEAK	NONE	STRONG	NONE	NONE	NONE	NONE	STRONG	NONE	MEDIUM	MEDIUM	MEDIUM	NONE	NONE	NONE	NONE	NONE
B SAFETY	STRONG	NONE	STRONG	WEAK	WEAK	NONE	STRONG	STRONG	NONE	MEDIUM	WEAK	WEAK	NONE	NONE	NONE	STRONG	STRONG
C DEPENDABILITY	WEAK	STRONG	STRONG	STRONG	STRONG	MEDIUM	NONE	STRONG	NONE	MEDIUM	WEAK	WEAK	WEAK	WEAK	NONE	NONE	NONE
D DURABILITY	NONE	NONE	MEDIUM	MEDIUM	MEDIUM	STRONG	NONE	NONE	NONE	MEDIUM	STRONG	NONE	MEDIUM	MEDIUM	NONE	NONE	NONE
E QUALITY	STRONG	MEDIUM	MEDIUM	STRONG	STRONG	WEAK	NONE	MEDIUM	STRONG	STRONG	STRONG	STRONG	STRONG	STRONG	STRONG	STRONG	NONE
F SCHEDULE	NONE	STRONG	WEAK	MEDIUM	WEAK	MEDIUM	STRONG	NONE	STRONG	STRONG	STRONG	STRONG	STRONG	STRONG	STRONG	STRONG	WEAK
G COST	NONE	MEDIUM	WEAK	WEAK	WEAK	STRONG	WEAK	NONE	STRONG	STRONG	STRONG	STRONG	STRONG	STRONG	STRONG	STRONG	WEAK
H PREDICTOR					3		3	2, 3	26	3	1	3	1, 3, 26	26	26	26	26
I REPORT FREQUENCY	PER FLIGHT	PER FLIGHT	PER FLIGHT	PER FLIGHT	PER ENGINE PER MONTH	PER FLIGHT	PER FLIGHT	PER FLIGHT	MONTHLY	MONTHLY	MONTHLY	MONTHLY	MONTHLY	MONTHLY	MONTHLY	MONTHLY	MONTHLY

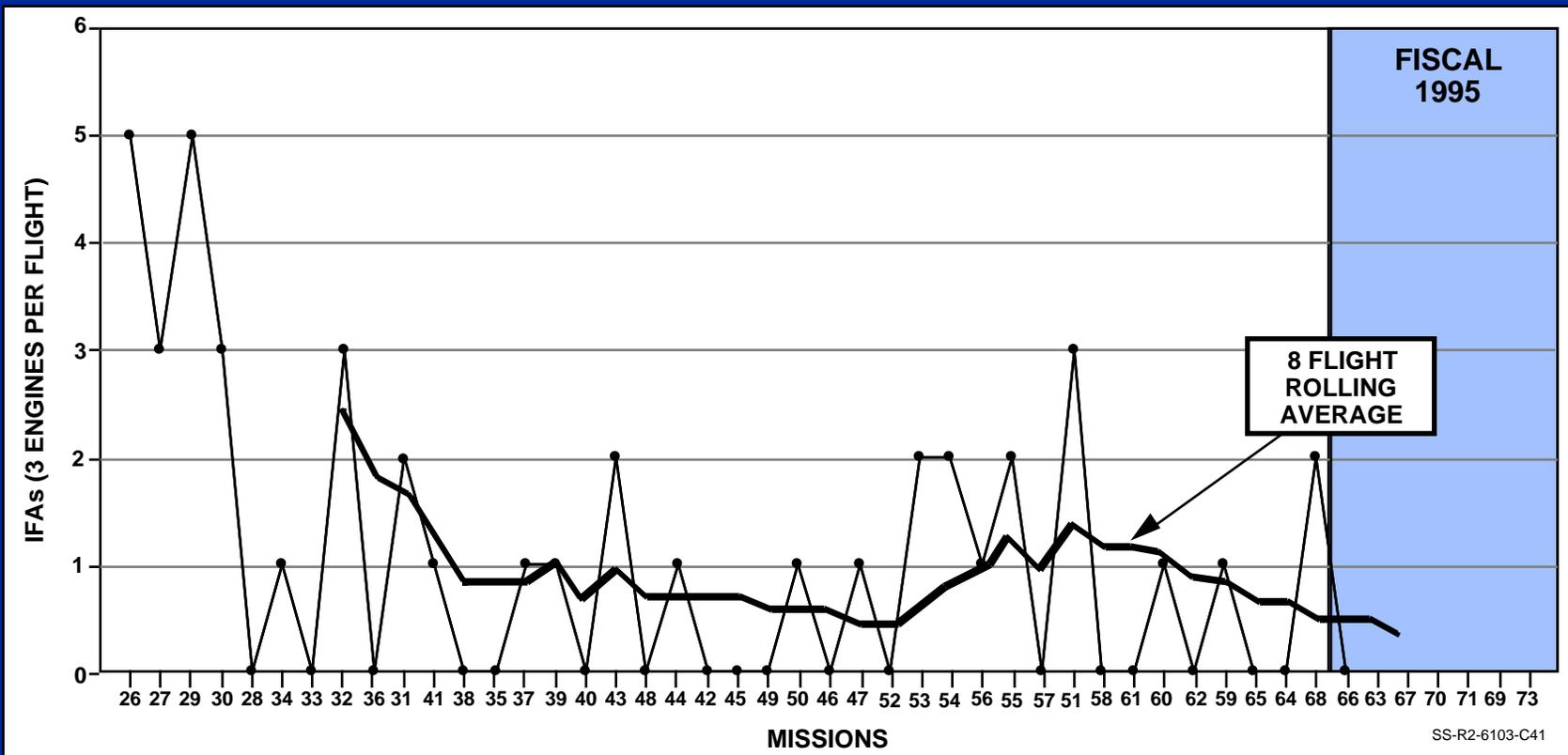
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Project Management Examples

Mission Data Sample

SSME IN-FLIGHT ANOMALIES (IFAs)



IFAs DECREASING SINCE STS-58/OCT 1993 (11 FLIGHTS) DUE TO REDUCTION IN COMBUSTION DEVICES AND AVIONICS ANOMALIES.



Examples of Performance Indicators

Contract Management Examples

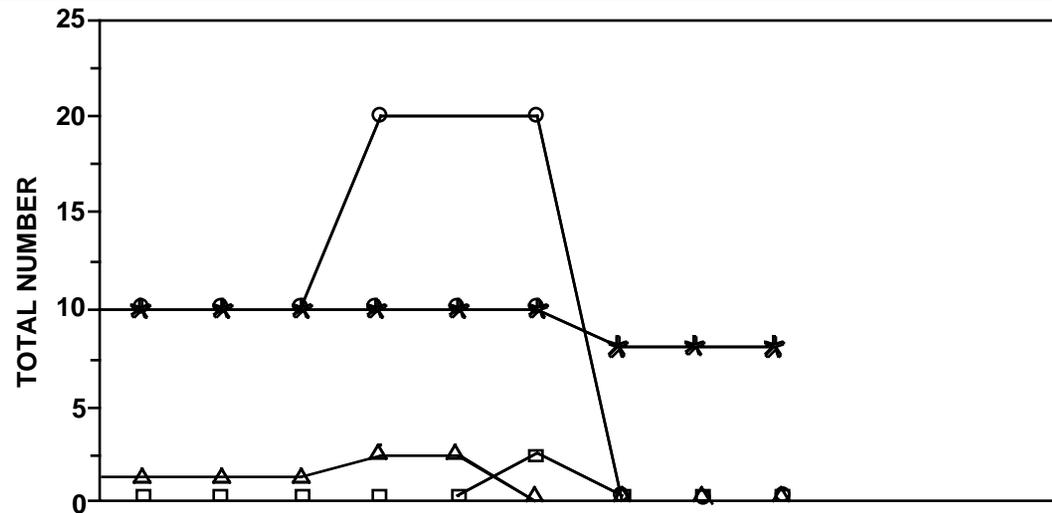
- **Overage Contract Status**
- **Purchase Order Activity**

Contract Management Examples

Overage Contract Status Sample



CONTRACTS
COMPLETED/OVERAGE



	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
FY95 - REOS MANAGED NASA CONTRACTS *	10	10	10	10	10	10	8	8	8			
NUMBER OF CONTRACTS Δ	1	1	1	2	2	0	0	0	0			
PERCENT OF OVERAGE ○	10	10	10	20	20	20	0	0	0			
CONTRACTS CLOSED □	0	0	0	0	0	2	0	0	0			

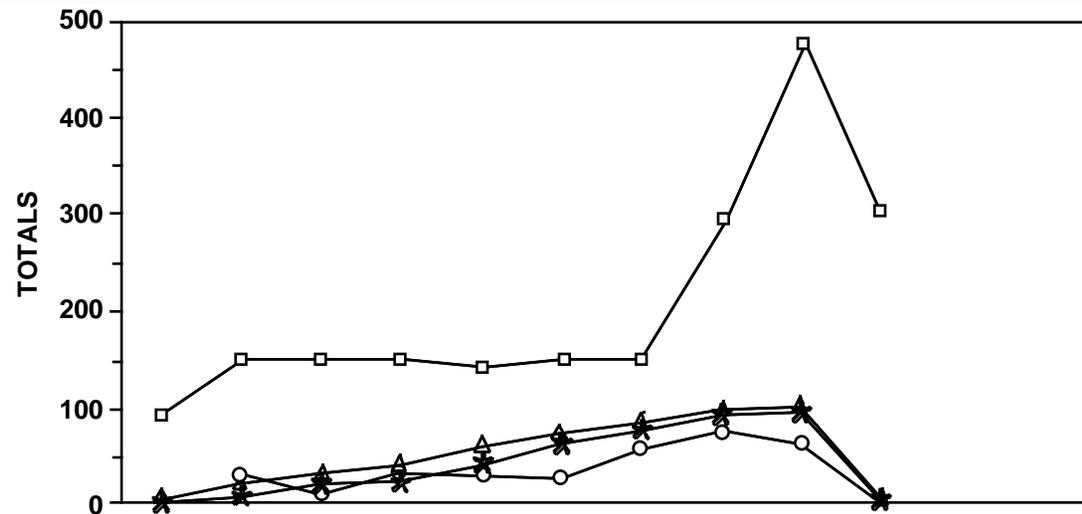
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Contract Management Examples



Purchase Order Activity Sample

PURCHASE ORDER ACTIVITY P.O. + CHANGE ORDERS/ DELIVERY ISSUED - ACKNOWLEDGED



		OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
P.O. + CHANGE ORDERS	□	81	145	143	143	133	147	144	288	476	308		
DELEGATION ISSUED CUMULATIVE	△	2	26	50	74	79	85	93	102	115	10		
DELEGATION ACKNOWLEDGMENT CUMULATIVE	*	4	7	29	42	60	73	80	95	103	14		
NEW AGLS	○		42	20	62	37	29	56	73	60	13		

AVERAGE DAYS TO DEVELOP AGLS IS DROPPED
P.O. AND CHANGE ORDERS ARE COMBINED FOR CLARITY AND EXPECTED TO LEVEL OFF AT 140
DELEGATION ACKNOWLEDGMENT IS FOLLOWED UP BY PHONE CALLS

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Quality Assurance Examples

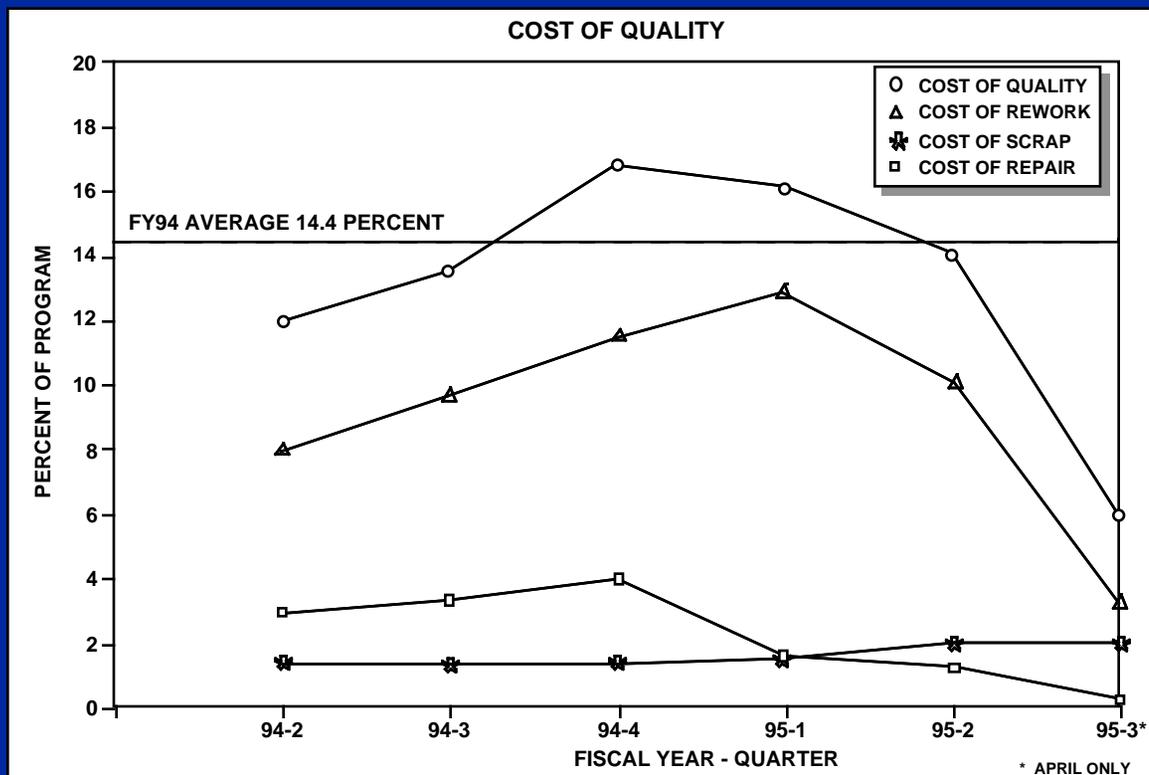
- **Nonconformance Costs**
 - Scrap, Rework, and Repair Trend
 - Material Review Board Actions Trend
- **Mandatory Government Inspection Activity**



Quality Assurance Examples

Nonconformance Costs

Scrap, Rework, and Repair Trend Sample



THE PROGRAM COST OF QUALITY HAS DROPPED FROM 16.8 PERCENT TO 13.7 PERCENT THE FIRST TWO QUARTERS OF THIS FISCAL YEAR, DRIVEN PRIMARILY BY SIGNIFICANT REWORK REDUCTIONS ON THE NOZZLE AND POWERHEAD TEAMS. THESE TEAMS ARE ALSO THE BIGGEST CONTRIBUTORS TO REDUCING THE REWORK COST FROM 4 PERCENT TO 1 PERCENT IN THE SAME QUARTERS.

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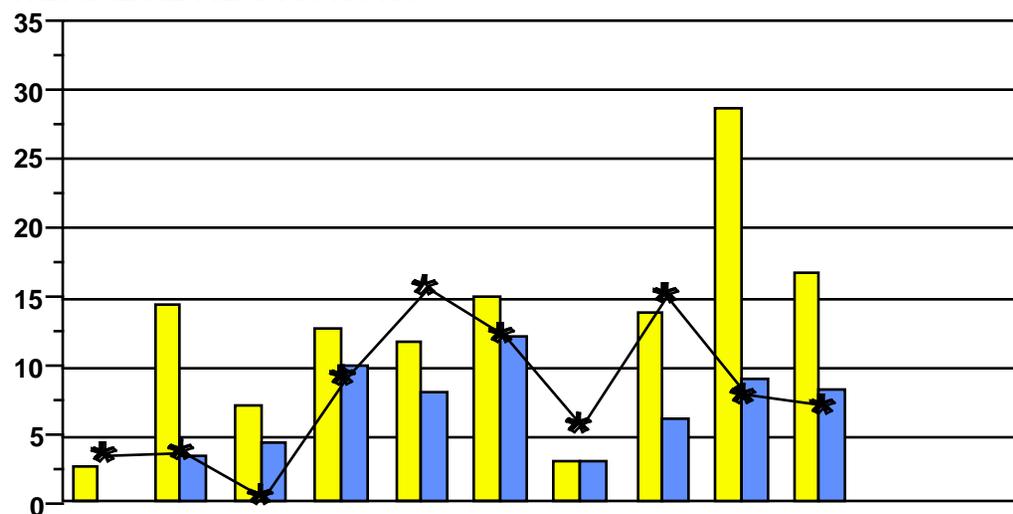


Quality Assurance Examples

Nonconformance Costs

Material Review Board Actions Trend Sample

MATERIAL REVIEW ACTIONS



TOTAL NUMBER OF ALL MRs AND CABs	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
TOTAL NUMBER OF MRs	2	14	8	13	12	15	3	14	29	17		
SUPPLIER/RICA MRs	0	3	4	10	8	13	3	7	9	8		
NUMBER OF CA APPROVED	3	4	1	9	16	13	6	15	8	7		

4 EACH CAs APPROVED FOR 2.0 POWER MODULE AND CARGO ELEMENT AND 1 EACH CAs FOR POWER CONTROL SYSTEM AND SOFTWARE AND SUPPORT EQUIPMENT. 2 EACH FOR ELECTRICAL ORU AND COMPONENT.

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Quality Assurance Examples

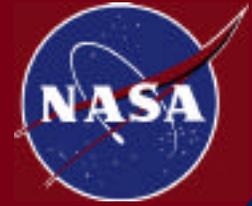
Mandatory Government Inspection Activity Sample

MANDATORY GOVERNMENT INSPECTION

	1994		1995						
	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL
AVERAGE RESPONSE TIME	15	9.5	10	5.5	6.9	5.4	30	8.8	9.8
NUMBER OF CALLS	50	50	48	91	187	129	205	193	176
TOTAL TIME IN MONTH			480	500.5	1290	696	6150	1698	1725

NOTE: ANALYSIS OF GOVERNMENT MANDATORY INSPECTION POINTS (GMIPS) IN ACCORDANCE WITH LETTER OF DELEGATION (LOD) IS BEING PERFORMED. CHART WILL FOLLOW IN NEAR FUTURE.

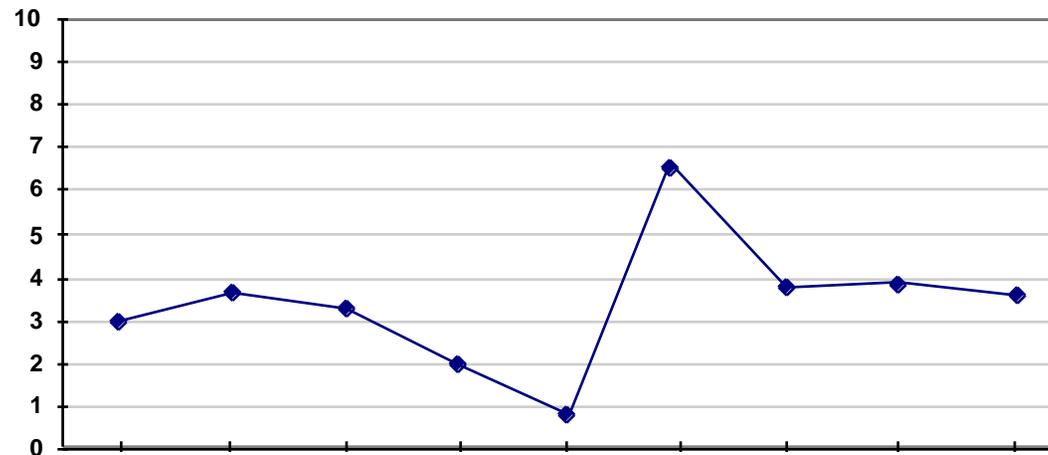
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Quality Assurance Examples

Mandatory Government Inspection Activity Sample

(MGI) Buy-off Response Time



	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
NUMBER OF CALLS	871	1298	974	1157	1054	766	894	687	655
AVERAGE RESPONSE TIME	2.94	3.58	3.24	1.94	0.75	6.5	3.7	3.78	3.53
NOT READY	12	22	29	27	23	21	29	22	24



Examples of Performance Indicators

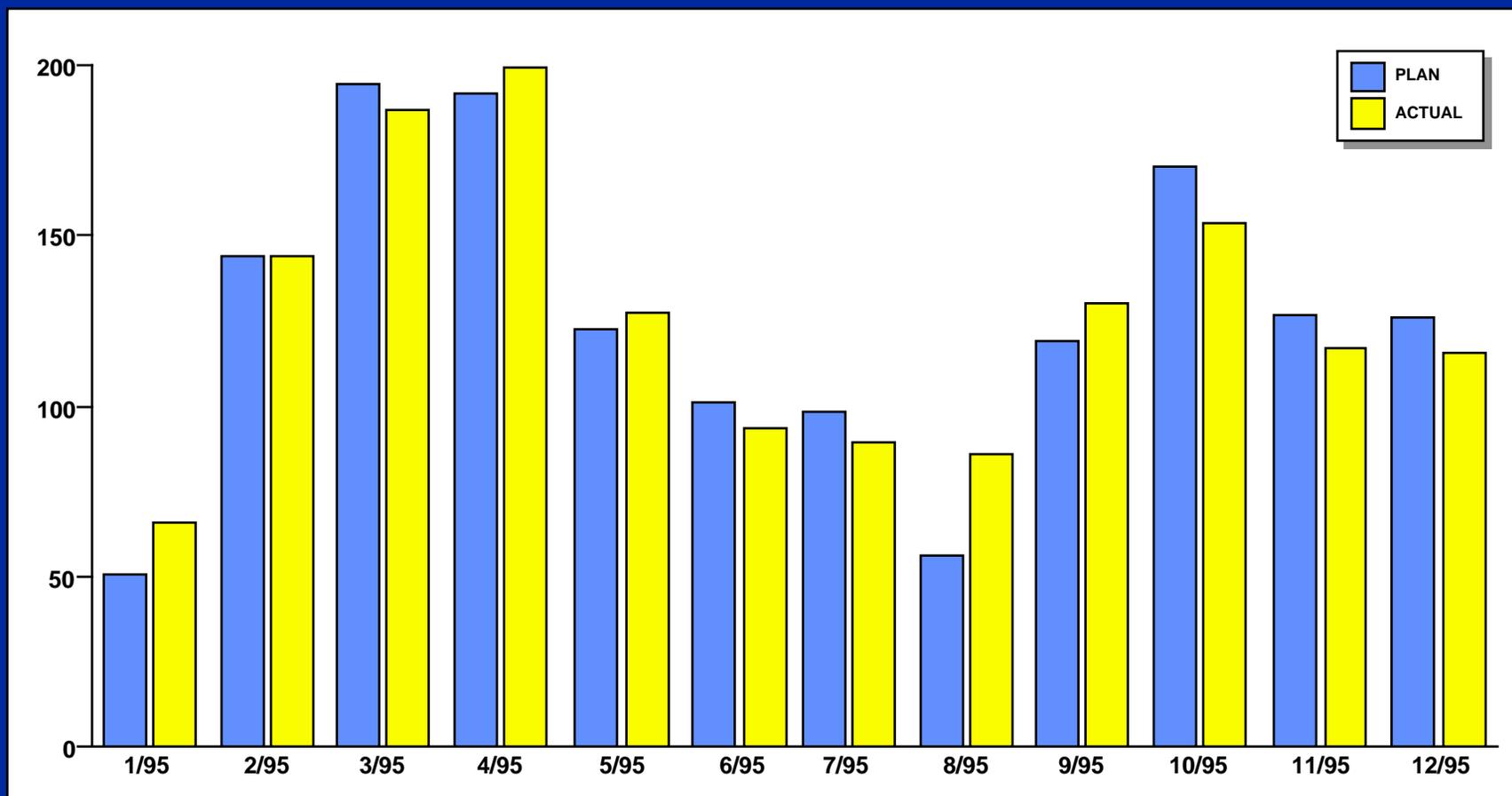
Engineering Examples

- **Design Activity**
 - **Drawing Releases versus Plan**
- **Configuration Management Activity**
 - **Number of Class I ECPs per Month**
 - **Number of Major Waivers/Deviations per Month**



Engineering Examples Design Activity

Drawing Releases versus Plan Sample



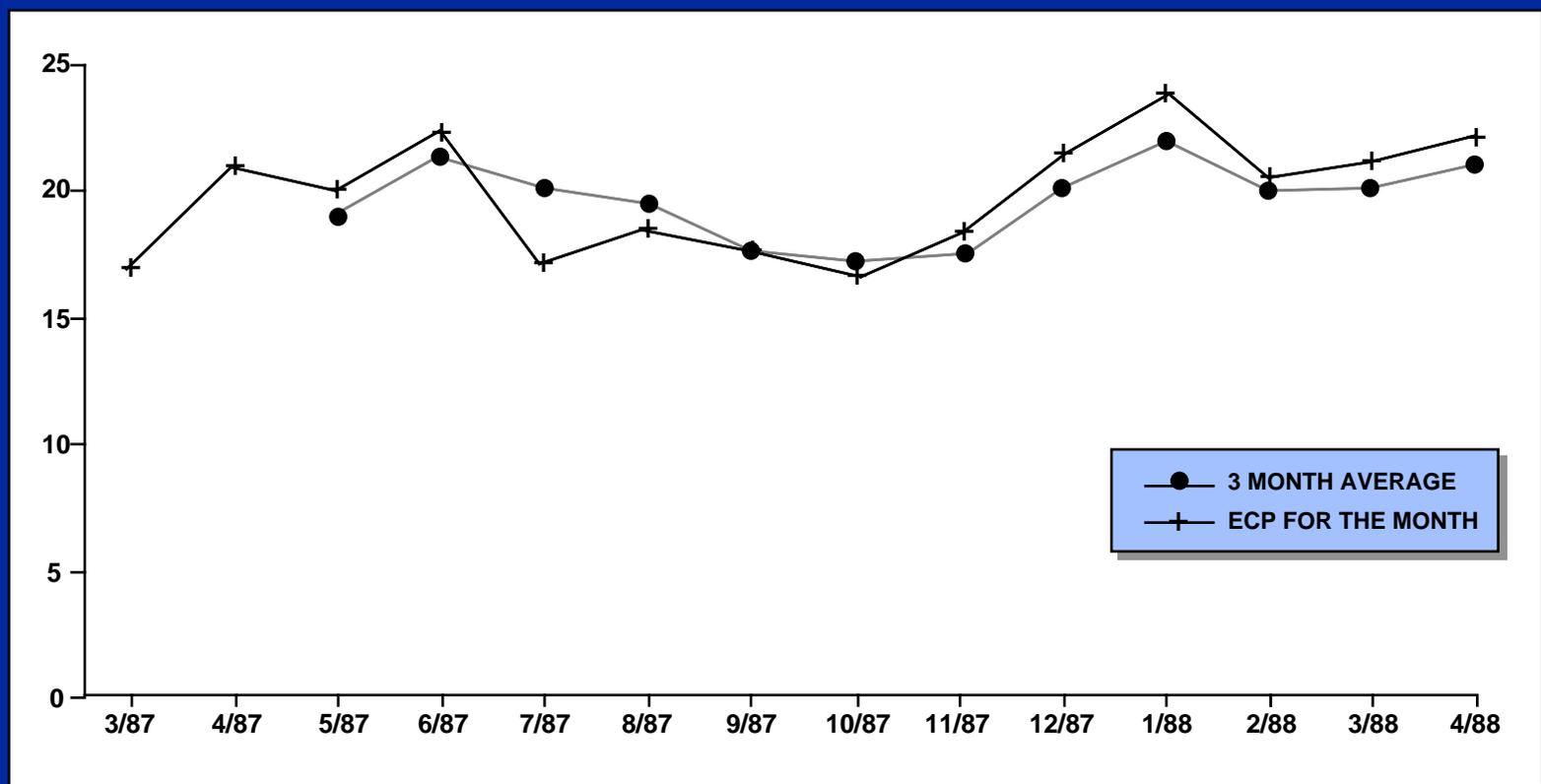
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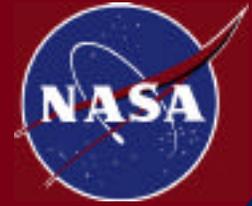
Engineering Examples

Configuration Management Activity

Number of Class I ECPs per Month Sample



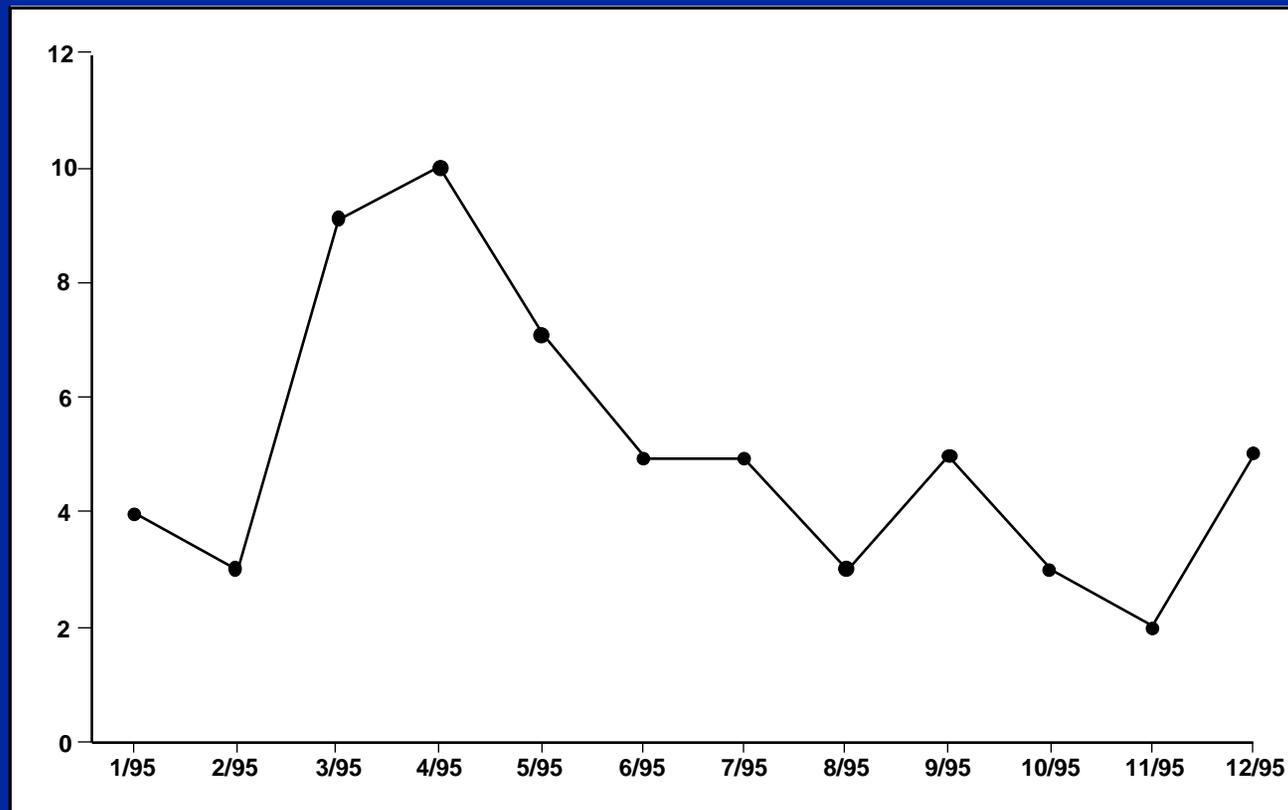
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Engineering Examples

Configuration Management Activity

Number of Major Waivers/Deviations per Month Sample



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Examples of Performance Indicators

Manufacturing Operations Examples

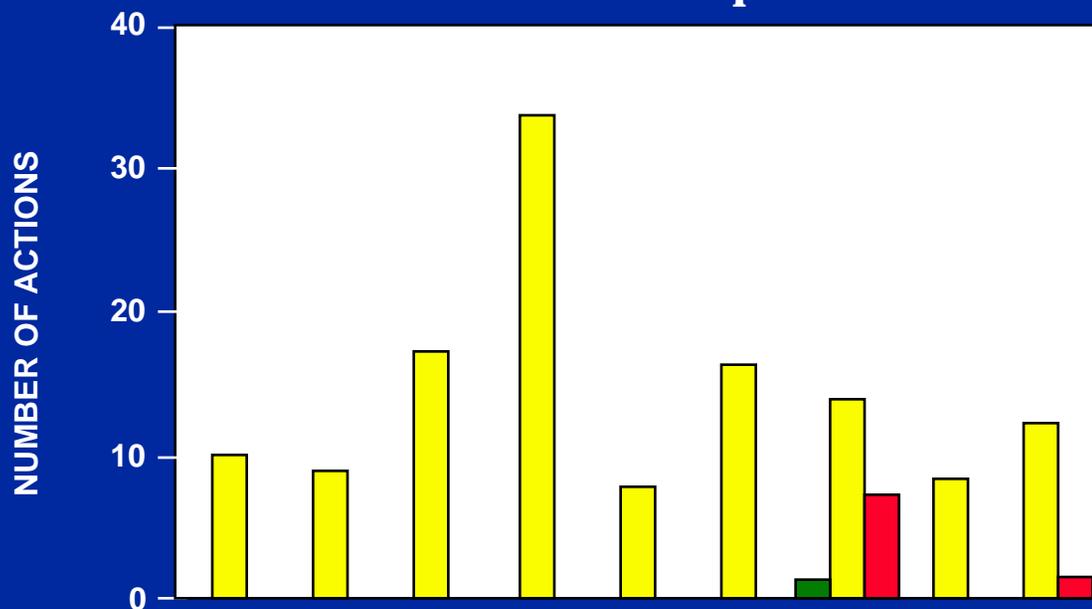
- **Manufacturing Activity**
 - **Corrective Action Status Sample**
- **Productivity**
 - **Selected Process Yields/Capability Sample**



Manufacturing Operations Examples

Manufacturing Activity

Corrective Action Status Sample



	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
NUMBER OF CIOs	0	0	0	0	0	0	1	0	0
NUMBER OF LEVEL I (CAR)	10	9	17	34	8	16	13	7	12
NUMBER OF LEVEL II (IDCR)	0	0	0	0	0	0	6	0	1

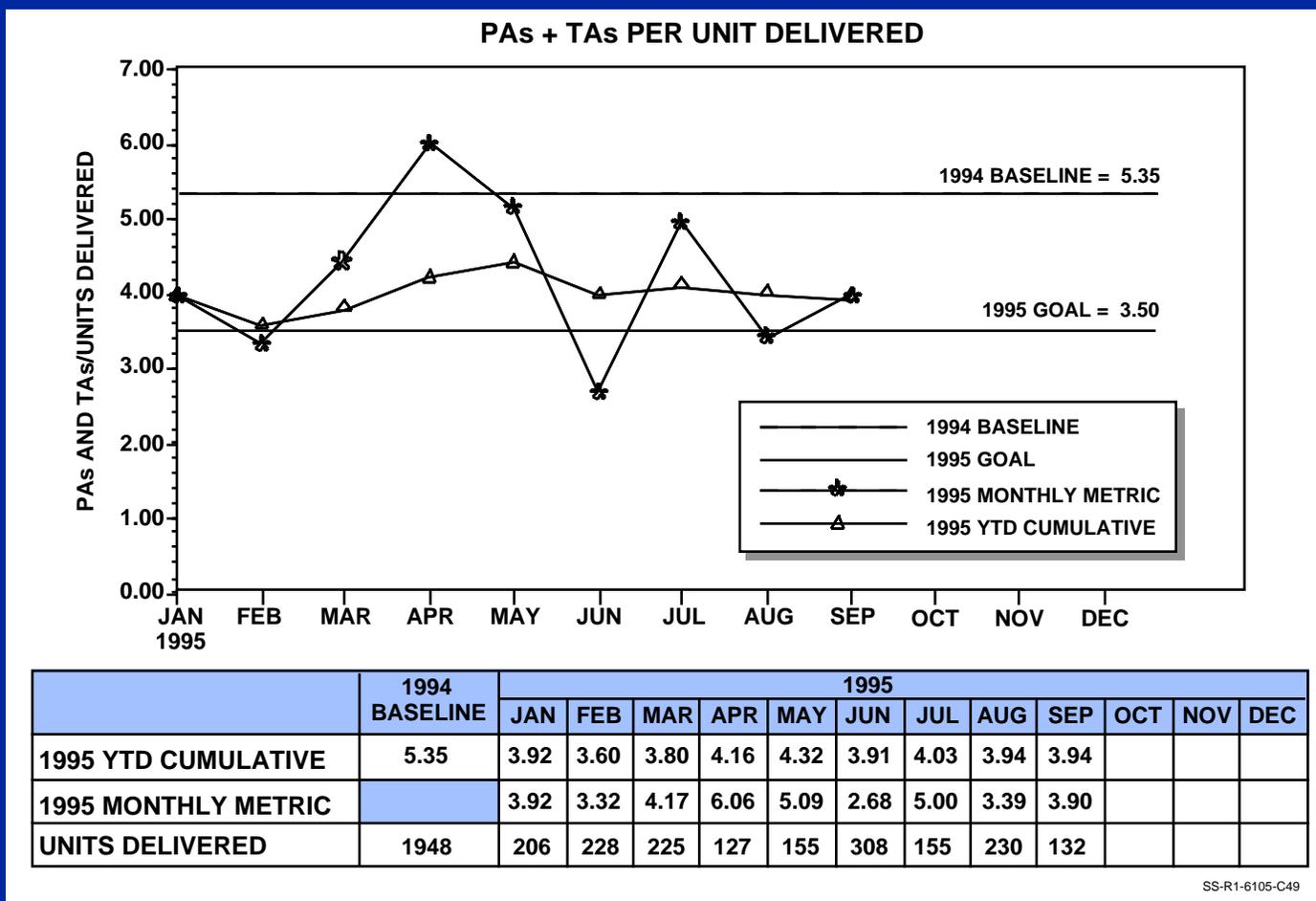
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Manufacturing Operations Examples

Productivity

Selected Process Yields/Capability Sample



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Wrap-up



- **What Have We Covered?**
 - **The Definition**
 - **NASA Contractor Metrics Program Status**
 - **Key Areas of Interest for Contractor Surveillance**
 - **Sources of Surveillance Metrics**
 - **Government Tips/Usage**
 - **Samples**
- **Questions?**
- **Now Let's Check How Well We Learned**