



# Management Systems/Processes

## Part II: Contractor Surveillance Methodologies

Prepared for NASA  
by OPM and BDM Federal, Inc.

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## Student Notes

## Module Training Objectives



**At the completion of this module, the student will be able to accomplish the following:**

- **Identify Basic Concepts Contained in the ISO 9000 Series Document**
- **Identify Basic Concepts Contained in the Mil-Q-9858A and Mil-I-45208A Specifications**
- **Recognize Similarities and Differences between ISO 9000 and the Mil Specifications Q-9858A and I-45208A**
- **Recognize Examples of DCMC Involvement in the Surveillance Process**
- **Identify Key Concepts and Functions of NASA Reports 533 and 1018**



## Student Notes

## Outline



- **Overview** **15 Minutes**
- **Contractor Surveillance Methodologies** **2 1/2 Hours**
  - ISO 9000 Series
  - Mil-Q-9858A/Mil-I-45208A
  - Government Right of Disapproval
  - DCMC/DCAA System Surveillance
  - NASA Reports 1018 and 533
- **Summary** **15 Minutes**

## Student Notes



## Overview

- **Who Is in Attendance?**
- **Surveillance Familiarity**
- **Government Right of Disapproval**

### Student Notes

Overview

## Who Is in Attendance?



- **This Training Is Intended for NASA Personnel Conducting In-plant Surveillance**
- **Now Let's Find out Your Background!**

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### Student Notes



- **Why Surveillance of Management Systems?**
  - Perform Government Mission - Responsibility
  - Verify Contractor Product Integrity
- **Review of Contractor Practices**
  - Hierarchy of Management Policies and Procedures
  - Management Systems
- **Surveillance Metrologies**

### Student Notes

## Government Right of Disapproval



- **Systems Subject to Approval**
  - Purchasing System
  - Property Management System
- **Implicit Disapproval Right**
  - Other Systems Normally Reviewed for Adequacy and Compliance to Contract
  - System Deficiencies Will Be Reported and Corrective Action Sought
  - Contracting Officer Disapproval for Major Problems

### Student Notes



## **Contractor Surveillance Methodologies**

- **ISO 9000 Series**
- **Mil-Q-9858A/Mil-I-45208A**
- **Government Right to Disapproval**
- **DCMC/DCAA System Surveillance**
- **NASA Reports 1018 and 533**

### **Student Notes**

## History of ISO 9000 Series



- **What Is ISO?**
  - **The International Standardization Organization (ISO) - Founded in 1946**
  - **Federation of National Standards Bodies**
  - **Purpose: Promote Development of Standardization and Cooperation**
  - **Scope of Work - "A to Z" Specialization and Application**
  - **Membership of Approximately 94 Countries and Growing**
  - **U.S. Member: American National Standards Institute (ANSI)**

### Student Notes

## History of ISO 9000 Series (Concluded)



- **Brief History**

- **ISO 9000 Series Development**
  - **Technical Committee (TC) 176 Formed in 1979 to Address World's Quality Demands**
  - **TC Work Led to Publication of ISO 9000 Series in 1987**
  - **Work Based on Mil-Q-9858A, NATO AQAP-1, and British BS 5750 Series**
- **Adopted in U.S. in 1987 as ANSI/ASQC Q90 Series**
- **Revised in 1994**

### Student Notes

## Overview of ISO 9000 Series Contents



- **The ISO 9000 Family**
  - **Standards: ISO 9001, 9002, and 9003**
  - **Guidelines**
    - **ISO 9000 Series - 4 Parts (Selection and Application)**
    - **ISO 9004 Series - 4 Parts (Quality Elements)**
    - **ISO 10011 Series - 3 Parts (Auditing)**
    - **ISO 10013 - Quality Manuals**
  - **Other**
    - **ISO 10012 (Metrological) and ISO 8402 (Vocabulary)**
- **ASQC Q9000 Series - Technically Equivalent**

### Student Notes



- **List of ISO 9000 Standards Key to NASA**
  - **ISO 9000, Quality Management and Quality Assurance Standards - Guidelines for Selection and Use**
  - **ISO 9001, Quality Systems - Model for Quality Assurance in Design/Development, Production, Installation, and Servicing**
  - **ISO 9002, Quality Systems - Model for Quality Assurance in Production, Installation, and Servicing**
  - **ISO 9003, Quality Systems - Model for Quality Assurance in Final Inspection and Test**
  - **ISO 9004, Quality Management and Quality System Elements - Guidelines**

## Student Notes

## ISO 9000 Standard Comparison



Standard	Application	Element Content
ISO 9001	Model for Quality Assurance in design, development, production, installation, and servicing	All listed on next chart
ISO 9002	Model for Quality Assurance in production, installation, and servicing	<ul style="list-style-type: none"> <li>• ISO 9001 elements except                             <ul style="list-style-type: none"> <li>- Design control (4.4)</li> </ul> </li> </ul>
ISO 9003	Model for Quality Assurance in final inspection	<ul style="list-style-type: none"> <li>• ISO 9001 elements except                             <ul style="list-style-type: none"> <li>- Design control (4.4)</li> <li>- Purchasing (4.6)</li> <li>- Process control (4.9)</li> <li>- Servicing (4.19)</li> </ul> </li> <li>• Elements reduced in scope                             <ul style="list-style-type: none"> <li>- Management responsibility</li> <li>- Quality system</li> <li>- Product identification</li> <li>- Inspection and testing</li> <li>- Nonconforming product</li> <li>- Corrective action</li> <li>- Quality records</li> <li>- Internal audits</li> <li>- Training</li> <li>- Statistical techniques</li> </ul> </li> </ul>

### Student Notes

## Summary of ISO 9001 Elements



- Management Responsibility
- Quality System
- Contract Review
- Design Control
- Document and Data Control
- Purchasing
- Control of Customer-supplied Product
- Product Identification and Traceability
- Process Control
- Inspection and Testing
- Control of Inspection, Measuring, and Test Equipment
- Inspection and Test Status
- Control of Nonconforming Product

### Student Notes

## Summary of ISO 9001 Elements (Concluded)



- **Corrective and Preventive Action**
- **Handling, Storage, Packaging, Preservation, and Delivery**
- **Control of Quality Records**
- **Internal Quality Audits**
- **Training**
- **Servicing**
- **Statistical Techniques**

### Student Notes



- **Summary of Basic Concepts (Selective)**
  - **Key Organization Has Objectives**
  - **Key Facets Contribute to Product Quality**
    - **Quality Due to Definition of Needs**
    - **Quality Due to Design**
    - **Quality Due to Conformance**
    - **Quality Due to Product Support**
  - **Work Is Accomplished as a Management Process**
  - **Organization Needs to Review and Evaluate Systems**

## Student Notes



- **Emphasizes Documentation**
  - Value of Documentation
  - Use in Evaluation of Contractor
  - Support for Quality Improvement
  - Support for Training
- **Selection and Use of International Standards**

## Student Notes



- **ISO Registration Process**
  - Refers to Third Party Assessment and Periodic Review of the Adequacy of a Supplier's System
  - Who Evaluates?
    - Self
    - Customer
    - Independent Party
  - Registration versus Certification
    - Only Guarantees that Management Systems Are Registered
    - Does Not Guarantee Certified Processes
    - Process Certification Usually a Separate Procedure

## Student Notes

## ISO 9000 Provisions versus Mil-Q-9858A



- **Much Similarity, but Some Differences**
- **ISO 9000 Requires the Following:**
  - Customer
  - Systems
  - Quality Management Policy and Commitment
  - Design Control
  - Records
  - Product Traceability
  - Internal Audits
- **ISO Emphasizes Customer**

### Student Notes



- **Mil-Q Emphasizes the Following:**
  - **Government Interface**
  - **Product**
  - **Requirement for a Quality Program**
  - **Tie with Other Military Specifications and Standards**
- **A Comparison Matrix - Handout**

## Student Notes



- **Policy Instruction - NMI 1270.3**
  - **Purpose: Establish Policy for Use of ISO 9000 Standards**
  - **Application: Use of ISO 9000 by NASA and NASA Suppliers**
  - **Policy**
    - **Requires Quality Management System that Complies with Appropriate ISO 9000 Standard**
    - **Procuring Activity May Tailor or Supplement Standards**
    - **Contractor Registration Is Optional**
    - **Compliance Established by Procuring Organization**

### Student Notes



- **Current Initiatives**
- **Implementation Status**

## **Student Notes**

Contractor Surveillance Methodologies: Mil-Q-9858A/Mil-I-45208A

## Overview



- **Mil-Q-9858A Specification History**
  - Original Issue April 1959
  - One Revision December 16, 1963
  - Rescinded as Part of Standards Reform
- **Mil-I-45208A**
  - Issued October 1961
  - Revised December 16, 1963; Amended
  - Rescinded as Part of Standards Reform

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## Student Notes

Contractor Surveillance Methodologies: Mil-Q-9858A/Mil-I-45208A

## Summary of Surveillance Strategy



- **Scope of Specifications**
  - Mil-I-45208A Establishes Inspection System
  - Mil-Q-9858A Establishes a Quality Program
  - Both Apply when Referenced in Specification or Contract
- **Mil-I-45208A Based on Inspections and Tests to Substantiate Product Conformance**
- **Mil-Q-9858A Based on a Quality Program to Assure Adequate Quality throughout All Areas of Contract**

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### Student Notes

Contractor Surveillance Methodologies: Mil-Q-9858A/Mil-I-45208A

## Summary of Key Requirements



- **Mil-I-45208A Elements**
  - Contractor Responsibilities
  - Documentation, Records, and Corrective Action
  - Measuring Equipment
  - Process Controls
  - Indication of Inspection Status
  - Government-furnished Material
  - Nonconforming Material
  - Qualified Products
  - Inspection Provisions and Inspections
  - Government Evaluation

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### Student Notes

Contractor Surveillance Methodologies: Mil-Q-9858A/Mil-I-45208A

## Summary of Key Requirements (Continued)



- **Mil-Q-9858A Elements**
  - **Quality Program Management**
  - **Work Instructions**
  - **Records**
  - **Quality Costs**
  - **Drawings, Documentation, and Changes**
  - **Measuring, Test, and Inspection Equipment**
  - **Metrology**
  - **Control of Purchases**
  - **Material and Process Control**
  - **Inspection and Testing**

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### Student Notes

Contractor Surveillance Methodologies: Mil-Q-9858A/Mil-I-45208A

## Summary of Key Requirements (Concluded)



- **Mil-Q-9858A Elements (Continued)**
  - **Nonconforming Material**
  - **Statistical Quality Control**
  - **Indication of Inspection Status**
  - **Government Subcontractor Inspections**
  - **Government Property Procedures**

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### Student Notes

**Contractor Surveillance Methodologies: Mil-Q-9858A/Mil-I-45208A**

**Examples of Mil-Q-9858A and Mil-I-45208A Applications**



- **Use of Mil-Q/Mil-I Requirements Decreasing**
- **Agency Transitioning to ISO 9000 Series and Performance-based Contracting**
- **In General:**
  - **Older Contracts (More than One Year) May Still Use**
  - **Recent Contracts Moving to New Methodologies**
- **Current Examples (as Available)**

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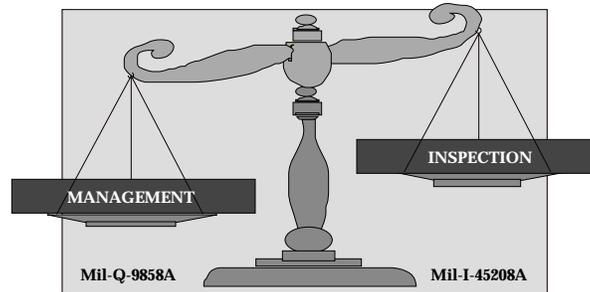
**Student Notes**

Contractor Surveillance Methodologies: Mil-Q-9858A/Mil-I-45208A

## Differences between Specifications



- **Mil-Q-9858A Requires a Quality Program**
- **Mil-I-45208A Emphasizes Inspection**



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### Student Notes

Contractor Surveillance Methodologies: Mil-Q-9858A/Mil-I-45208A

## Differences between Specifications (Concluded)



- **Mil-I-45208 Has Fewer Requirements**
- **Mil-Q-9858A Requires a Quality Program**
  - **Quality Management**
  - **Costs Related to Quality**
  - **Drawings, Documentation, and Changes**
  - **Production Tools, Contractor Inspection Equipment, and Advanced Metrology**
  - **Completed Item Inspection**
  - **Handling, Storage, and Delivery**

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### Student Notes

## Government Right of Disapproval



- **Government Basis**
  - Contract Requirements such as Mil-Q-9858A
  - Federal Acquisition Regulation (FAR)
- **Explicit Approval Right**
  - Property System (FAR Part 45)
  - Purchasing System (FAR Part 44)
  - Formal Government Reviews
  - Contracting Officer Approval

### Student Notes

## DCMC/CAS System Surveillance



- **Mission**
  - DOD Contract Administration Services (CAS) Agency
  - FAR 42 Functional Requirements
  - Program/Project Delegations
- **Surveillance Approach**
  - Contract Administration Offices (CAOs)
    - In-plant
    - Itinerant
  - Key Concepts
    - Process Oriented CAS - PROCAS
    - In-plant Quality Evaluation (IQUE)

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### Student Notes

**NASA Report 1018: Report of  
Government-owned/Contractor-held Property**



- **Purpose**

- **Contractor Report of All NASA-owned Property, Materials, and Space Hardware Acquired or Disposed**
- **Provides NASA with Financial Data on Government-furnished or Contractor-acquired Property with Government Vested Title**

**Student Notes**



## The Form

- **Contents**
  - **Cost and Type of Government Property Held**
  - **Additions of GFP Received during Period**
  - **Contractor-acquired Property and Disposals during Period**
  - **Schedule I: List of GFP Additions and Disposals**
  - **Schedule II: List of Space Hardware Designated Items**
- **NASA Form 1018**

## Student Notes



## **Key Points**

- **NASA FAR Supplement 19-45.71 Instructions**
- **Prepared By Contractor - Original and Three Copies**
- **Contractor Certifies Report**
- **Original to Installation Financial Officer; Copies to Administrator by July 31 of the Reporting Year**
- **Property Administrator Reviews and Advises Contracting Officer**

## **Student Notes**

## Purpose of NASA Report 533



- **NASA Official Cost Reporting Documents for Cost-type and Fixed-price Incentive Contracts**
- **Uses**
  - Enable NASA Management to Estimate Project/Program Costs and Hours
  - Evaluate Contractor Cost Performance
  - Plan and Monitor Project/Program Resources
  - Provide Basis to Record Costs in NASA Accounting System

### Student Notes

## **The Form(s)**



- **Two Forms for Cost Accrual:**
  - **NF 533M: Monthly Contractor Financial Management Report**
  - **NF 533Q: Quarterly Contractor Financial Management Report**
- **NF 533P: Contractor Performance Report Provides Performance Measurement Data**
- **Sample NASA 533 Forms**

## **Student Notes**

## The Form(s) (Continued)



- **NASA Form 533M**
  - **Monthly Report**
    - **General Information**
      - Report Period
      - Contract Value
      - Contract Number
      - Contract Type
      - Scope of Work
    - **Planned and Actual Costs and Labor Hours (by Reporting Cost Category)**
    - **Estimated Costs/Labor to Complete**
    - **Estimated Final Cost/Labor**
    - **Unfilled Orders**
    - **Authorized Contractor Representative Signature**
  - **For Contract Values Greater than \$500K, submitted Monthly, 10 Operating Days after Monthly Accounting Closing**

## Student Notes

## The Form(s) (Concluded)



- **NASA Form 533Q (by Reporting Category)**
  - **Quarterly Report**
    - **Contract Value and Unfilled Orders**
    - **Actual Costs and Labor Hours for Preceding Months**
    - **Time Phased Estimated Costs/Labor to Complete for Year**
    - **Estimated Contract Final Cost/Labor**
    - **Authorized Contractor Representative Signature**
  - **For Contracts > \$1M, Submitted Every Quarter by 15th Day Before Month Preceding Reporting Quarter**

## Student Notes



## Key Points

- **NASA Handbook 9501.2 Instructions**
- **Prepared by Contractor**
- **Contractor Certifies Report**
- **Requirements**
  - **Traceability to Original Contract Baseline**
  - **Reflect New Change Orders and Reconciliation to Baseline**
  - **Report Estimates for Contractor Accounting Period**
  - **Estimates Based on Most Current and Reliable Information (e.g., Include Potential Overruns/Underruns)**

## Student Notes



## Key Points (Concluded)

- **Consequences of Late Reporting**
  - NASA May Penalize by Decreasing Award Fee
  - Increased Review of Contractor's Cost and Fee Vouchers
  - Delayed or Withheld Payments of Vouchers
- **Reporting Additional Information**
  - Information on Award Fee and Technical Assumptions
  - Cost Adjustment Information/Rationale and Excess Costs
  - Subcontractor Information
- **Deviations from Standard Reporting**

## Student Notes

## Summary



- **We Discussed the Requirements of Several Surveillance Methodologies:**
  - ISO 9000 Series Standards
  - Mil-Q-9858A and Mil-I-45208A
  - Government Approval/Disapproval
- **We Briefly Compared the Requirements**
- **DCMC Surveillance Was Addressed**
- **We Presented an Overview of Two Key NASA Reports - NF 1018 and NF 533**

## Student Notes

## Where to Obtain More Information



- **ISO 9000 Series Standards**
- **Mil-Q-9858A, Quality Program Requirements (December 16, 1963)**
- **Mil-I-45208A, Inspection System Requirements (December 16, 1963)**
- **NMI 1270.3, NASA Quality Management System Policy (Effective Date December 6, 1995)**
- **NASA FAR Supplement 18-45.71, Forms Preparation**
- **NF 1018, Report of Government-owned/Contractor-held Property**
- **Financial Management Reporting for Contractors Course Guide (August 1994)**
- **NF 533Q and NF 533M, Contractor Financial Management Reports**
- **NASA Handbook 9501.2, Procedures for Contractor Reporting of Correlated Cost and Performance Data**

## Student Notes



