INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
MANAGEMENT SYSTEMS/PROCESSES PART II: CONTRACTOR SURVEILLANCE METHODOLOGIES This second half of the Management Systems and Processes training module will cover contractor surveillance methodologies. In the first half of the training module, "Contractor Management Systems," the typical management systems used by NASA contractors to operate their internal business activities were discussed. For most NASA program/project contractors, the management systems are influenced by the contract requirements and customer contract surveillance methodologies. Processes implemented by contractors for major programs and projects are predominantly based on compliance to Government requirements. We will concentrate on the surveillance methodologies defined by the standards of the International Standardization Organization, known as ISO, and the Mil-Q-9858A/Mil-I-45208A specifications.	Slide # II-1 Note: Training Module II.A specifically addresses NHB 5300 and 1700 series. As needed, this Contractor Management Systems Module will point to Module II.A for continuity. Note: Training Module III.C addresses the topic of Government Rights as related to facility access, data access rights, disclosure statements, and the prerogatives to disapprove procedures. This Management Systems/ Processes Module will not repeat the details of III.C but will point as applicable to related subject matter for continuity.
MODULE TRAINING OBJECTIVES At the completion of this training module, the student should 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	Slide # II-2
OUTLINE This slide presents the outline for the second module of the Management Systems/ Processes training module. The training module begins with an overview that introduces the class and refreshes our familiarity with contractor surveillance purposes and contractor management system practices.	Slide # II-3

INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
The bulk of our time will be spent examining several contractor surveillance methodologies. This will include sections on the history of the ISO 9000 Series, an overview of the series contents, and the current status of NASA policies related to ISO 9000. As precursors of the now popular ISO standards, the Mil-Q-9858A and Mil-I-45208A specifications are described and discussed. The Government approval/disapproval of contractor management systems was previously discussed in the Management Systems module, but for emphasis, we'll briefly address this important subject again. The Government right to "disapproval" as well as the Government contract right for explicit approval of selected systems/processes is also discussed. In addition, the module covers the involvement of Contract Administration Services organizations such as DCMC and DCAA in contractor system surveillance regarding their in-plant/itinerant approaches. Our final subject area covers two key NASA reports that are related to contractor performance reporting: NASA Report 1018 (End of Year Property Report) and NASA Report 533 (Contractor Financial Management Reporting).	Slide # II-3 (continued)
OVERVIEW This slide introduces the topics covered in the overview section of the module. It consists of three slides that (1) address the intended audience of the training, (2) familiarize the student with contractor performance surveillance, and (3) discuss the Government contract rights of approval and disapproval.	Slide # II-4
OVERVIEW: WHO IS IN ATTENDANCE? This particular module is intended for NASA personnel charged with the task of in-plant contractor surveillance. As we have pointed out in other training modules, the wide range of NASA missions and large cast of supporting contractors present a diverse collection of in-plant contractor environments and management functions. In order to tailor course emphasis to the specific needs and interests of each participant, it is important to understand each one's background.	Slide # II- 5 <u>Note</u>: Class instructor should lead an open discussion to obtain an awareness of student work environments. This may include a quick survey of what systems (i.e., ISO or Mil-Q) they are familiar with or involved with.

INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
OVERVIEW: SURVEILLANCE FAMILIARITY It is important to remember the basic reason why a customer, such as NASA, needs to conduct in-plant contractor performance surveillance. As outlined in NHB 7120.5, Management of Major System Programs and Projects Handbook, NASA has chosen an acquisition policy that employs the private sector to support the acquisition of system projects. This NASA policy is predicated on the concept that contractors are responsible for product quality, including supplier products, and for offering only conforming products to the Government. The overall responsibility for achieving national objectives and strategies through program and project success still resides with NASA. There is an inherent responsibility to the American taxpayer to ensure contractor performance meets the contract requirements. Some method of contractor performance surveillance is needed. To properly verify the integrity of the products produced by the contractor, it is important to understand the methodologies placed on contract as our tools for surveillance. A quick review of contractor management practices will also assist our upcoming discussions on methodologies that drive the management systems. Regardless of its size, a company must have established written documentation that defines and executes the business's objectives and strategies. A typical structure involves a hierarchy of documentation that begins as top-level, senior management policy and flows down into the specific procedures used at a department level. Functional departments, such as quality assurance, operate to manage the functional tasks. The hierarchy must include networks for the communications needed to translate contract requirements into products. A functional set of procedures represents a process or management system. We will next address the ISO 9000 standards, Mil-Q-9858A, and Mil-I-45208A.	Slide # II-6 Reference: Module VI.A, Contractor Performance Surveillance Overview.

INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
OVERVIEW: GOVERNMENT RIGHT OF DISAPPROVAL As we discuss the system methodologies, keep in mind the Government contract right of approval or disapproval for management systems that implement contract requirements. By virtue of contract terms and clauses cited from the Federal Acquisition Regulation, certain systems are specified for explicit Government approval. Systems that currently require approval are the purchasing and property systems. The exact relationship of these FAR requirements (FAR Part 44, Purchasing; FAR Part 45, Property) with a contractor system based on a methodology such as ISO 9000 standards requires contract definition. Management systems other than purchasing and property will normally receive some form of review for adequacy and compliance. This review can be conducted directly by the customer or by an independent party that has the customer's confidence. However, it is important to again emphasize that the Government will always reserve the right to disapprove procedures that do not comply with contract requirements. Systems with major deficiencies will require corrective action.	Slide # II-7 Reference: 1. Module III.C, Contractor Interfaces, under RMO In-plant Relationships and Interfaces discusses this subject. 2. Module V.B, Management Systems/Processes - Part 1
CONTRACTOR SURVEILLANCE METHODOLOGIES This section addresses the following contract surveillance methodologies: · ISO 9000 Series · Mil-Q-9858A/Mil-I-45208A · Government Right of Disapproval · DCMC/DCAA System Surveillance · NASA Reports 1018 and 533	Slide # II-8
ISO 9000 SERIES: HISTORY Our discussion of ISO 9000 Series standards will begin with a brief history. ISO itself is a worldwide federation of national standards bodies or groups known as the International Standardization Organization. The organization was founded in 1946 to promote the development of standardization and related world activities to facilitate the international exchange of goods and services and to develop cooperation in intellectual, scientific, technological, and economic activity.	Slide # II-9

INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
The scope of ISO work ranges literally from "a to z" specialization areas with the exception of electrical and electronic engineering, which are covered by the International Electrotechnical Commission (IEC). ISO does collaborate closely with the IEC on all matters of electrotechnical standardization. The ISO work is normally carried out through its technical committees. There are approximately 180 technical committees. Finished ISO works are published as international standards. As indicated, ISO is a worldwide federation of national standards bodies. One recent count showed 94 countries with a representative standards body as a member. The American National Standards Institute (ANSI) is the member body representing the United States. The American Society of Quality Control (ASQC) administers the U.S. Technical Advisory Group (TAG) for ANSI. TAG is responsible for submitting inputs to the ISO Technical Committee (TC) 176, which developed the ISO 9000 Standard Series.	Slide # II-9 (continued)
ISO 9000 SERIES: HISTORY (CONCLUDED) To address increasing customer demands for quality and to harmonize increasing world activity in quality assurance standards and quality management, ISO formed TC 176 in 1979. Based on the works of TC 176, ISO published in 1987 the ISO 9000 Standard Series on quality management and assurance. The resulting standards were based on inputs from many countries, particularly Canada, the United Kingdom, and the United States. The series was based on several other well-known quality management programs and publications. Mil-Q-9858A, Quality Program Requirements, developed and published in 1959 by the Department of Defense, was one of the key sources. The Allied Quality Assurance Publication 1 (AQAP-1), established in 1968 by the North Atlantic Treaty Organization (NATO) based on Mil-Q-9858A, was another source. A primary source was derived from British efforts. The British adopted AQAP-1 as its Management Program Defence Standard, and then, through the British Standards Institution, developed the first known commercial quality management system standard called BS 5750. Using these existing efforts, ISO created the ISO 9000 series standards in 1987. It is composed of five international standards numbered ISO 9000, 9001, 9002, 9003, and 9004 and is supplemented by a vocabulary numbered ISO 8402. The U.S. adopted the ISO 9000 standards as ASQC Q90 Standard Series (later changed to Q 9000). The ISO 9000 series, which was revised in 1994, is the current issue.	Slide # II-10 References: 1. U.S. Department of Commerce/Technology Administration National Institute of Standards (NISTIR) 4721 Report: Questions and Answers on Quality, the ISO 9000 Standard Series, Quality System Registration, and Related Issues (Revised July 1992). 2. U.S. Department of Commerce/Technology Administration NISTIR Report 5122: More Questions and Answers on the ISO 9000 Standard Series and Related Issues (Issued April 1993). 3. ASQC Brochure: ANSI ASC Z-1 Committee on Quality Assurance Answers the Most Frequently Asked Questions About the ISO 9000 (ANSI/ASQC Q9000) Series (May 1, 1995).

INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
ISO 9000 SERIES: OVERVIEW OF ISO 9000 SERIES CONTENTS **As we know it today, the ISO 9000 series or family of standards is composed of several standards and guidelines. Recognizing the generic scope of the series, each standard addresses a specific aspect of quality assurance. The user will select the appropriate standard for application. The three basic standards are ISO 9001, ISO 9002, and ISO 9003; each serves as a model for a distinct quality system. Later, we will show a comparison.** **The standards are supplemented by several guidelines. ISO 9000 has four parts that cover guidance on selection and use as follows:** · **Part 1: Guidelines for selection and use** · **Part 2: Generic guidelines for the application of ISO 9001, ISO 9002, and ISO 9003** · **Part 3: Guidelines for the application of ISO 9001 to the development, supply, and maintenance of software** · **Part 4: Guide for program management dependability** **ISO 9004 provides guidance for developing and implementing a quality system. This guide presents a detailed discussion of the quality system elements of the basic standards. ISO 10011,** *Guidelines for Auditing Quality Systems*, **provides auditing guidance in three parts. As its name suggests, ISO 10013,** *Guidelines for Developing Quality Manuals*, **addresses quality manuals. Other documents complete the family. ISO 10012,** *Quality Assurance Requirements for Measuring Equipment*, **addresses requirements for measuring equipment. The ISO 9000 vocabulary series is published as ISO 8402,** *Quality Management and Quality Assurance - Vocabulary*. **The popularity and acceptance of the ISO 9000 Standards Series is driving the need to continuously review and update the publications. New draft standards as well as revisions are currently contemplated.**	**Slide # II-11** **<u>Reference</u>: NISTIR 4721 Report: Questions and Answers on Quality, the ISO 9000 Standard Series, Quality System Registration, and Related Issues (Revised July 1992).**

INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
ISO 9000 SERIES: OVERVIEW OF CONTENTS (CONCLUDED) This chart shows the basic standards that compose the 1987 version of the ISO 9000 Standards Series. Please note the title of each standard is an indicator of its purpose. ISO 9001, ISO 9002, and ISO 9003 are almost the same except for the phase. ISO 9001 is the all-inclusive standard model. Again, the three parts of ISO 9000 provide guidance on the use of ISO 9001 through ISO 9003. ISO 9004 provides detailed guidance on the quality elements for use by a supplier to internally establish a quality system. The next chart compares ISO 9001, ISO 9002, and ISO 9003.	Slide # II-12
ISO 9000 SERIES: ISO 9000 STANDARD COMPARISON For NASA major programs and projects, ISO 9001 will most likely be the standard used by major NASA program and projects contractors who seek registration. The other two standards are very similar except in their scope. The matrix on the slide shows the differences. Again, all of the models are generic in that they are not specifically written for a commodity or product. ISO 9001 contains all of the model elements to be used for a system through these phases: · Design · Production · Servicing · Development · Installation ISO 9002 is the model for quality assurance in the following: · Production · Servicing · Installation	Slide # II-13 <u>Example</u>: The model element 4.1.2.1, Responsibility and Authority for ISO 9001 and ISO 9002, requires: "The supplier's management with executive responsibility shall define and document its policy for quality, including objectives for quality and its commitment to quality. The quality policy shall be relevant to the supplier's organizational goals and the expectations and needs of its customers. The supplier shall ensure that this policy is understood, implemented and maintained at all levels of the organization."

INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
ISO 9002 contains the same requirements as ISO 9001 except for design and development. The requirement of design control (element 4.4) is specifically excluded from ISO 9002. ISO 9003 is tailored for a quality assurance model in final inspection and test only. Elements for design control (4.4), purchasing (4.6), process control (4.9), and servicing (4.19) are not included. Other elements are significantly tailored down in scope.	Slide # II-13 (continued) On the other hand, ISO 9003 merely requires: "The responsibility, authority and the interrelation of personnel who manage, perform and verify work that is subject to the requirements of this International Standard shall be defined and documented, particularly for personnel who need the organizational freedom and authority...".
ISO 9000 SERIES: SUMMARY OF ISO 9001 ELEMENTS Next, we list the elements included in ISO 9001 since it represents the all-inclusive quality system model. The scope of this training model does not allow time to address each element individually. The elements will be discussed in part in other training modules. The intent of listing the elements here is to show the extent of coverage addressed by the ISO standards. The following points should be remembered concerning the ISO 9001 requirements: · The model elements are generic in their application to a product. The application of the model addresses various life-cycle phases such as design and production. · The ISO standards are written primarily for a supplier's internal use. · The requirements refer to the customer and are not specifically concerned with the Government. · The standards rely heavily on written documentation.	Slide # II-14
ISO 9000 SERIES: SUMMARY OF ISO 9001 ELEMENTS (CONCLUDED) This next chart concludes the listing of the ISO 9001 model quality system elements.	Slide # II-15

INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
ISO 9000 SERIES: SURVEILLANCE STRATEGY	**Slide # II-16**
The ISO Series standards contain several basic concepts that are important to understand. The guidance for their application is contained in the four parts of ISO 9000, *Quality Management and Quality Assurance Standards.* **The guidance provided in ISO 9000 helps to provide an effective understanding of the ISO 9000 family. Some of the main ideas from ISO 9000 that are especially relevant to this training module are summarized below:** · **ISO 9000 assumes the management system of an organization is influenced by organizational objectives, products, and specific practices. Included in the systems for which this statement applies are the contractor's quality systems. In quality systems, emphasis is placed on consideration of organizational objectives and commitments to quality.** · **ISO 9000-1, paragraph 4.5, discusses the following four facets of quality:** − **Quality due to definition of needs for the product: This relates to defining and updating the product in response to marketplace needs.** − **Quality due to product design: This refers to designing-in quality and providing value to the customer.** − **Quality due to conformance to product design: This facet requires day-to-day consistency in complying to designed requirements.** − **Quality due to product support: The fourth facet requires furnishing support through the entire life cycle.** · **Throughout the ISO 9000 series, emphasis is placed on the understanding that all work is accomplished by a process. The process has inputs and outputs. The inputs are derived from the customer, and the outputs are the results of a process. The process itself is a management system that simply adds value to the inputs to result in the desired output.** **Another concept discussed in ISO 9001 is the evaluation of quality systems and the systematic review of the status of the quality system by management.**	**<u>Reference:</u> ISO 9000-1, Introduction.**

INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
ISO 9000 SERIES: SURVEILLANCE STRATEGY (CONTINUED) We continue our discussion of ISO 9000 strategy with several other noteworthy observations. The standards place heavy emphasis on documentation. ISO 9000-1, paragraph 5.1, lists these documentation values: · Achieving required quality · Evaluating quality systems · Quality improvement · Maintaining the improvements Obviously, the ISO 9000 series places emphasis on an organization using the family of international standards in order to develop, implement, and improve a quality system.	Slide # II-17
ISO 9000 SERIES: SURVEILLANCE STRATEGY (CONCLUDED) One more important aspect of the ISO series standards should be highlighted. The issue is registration. NISTIR 4721 discusses "quality system registration " or approval by the assessment and periodic review of the adequacy of a supplier's quality system by a third party. The third party is referred to as a quality system registrar. In the United States, the Registration Accreditation Board (RAB) was established as an ASQC affiliate in 1989 to evaluate the quality of services offered by registrars. When a supplier conforms to the registrar's interpretation of the chosen ISO 9000 standard, a "certificate of registration" is issued. Herein lies an issue of concern with U.S. Federal agencies. The interpretation of an ISO 9000 standard, which has been chosen as a quality system model by a supplier, is open to varying interpretations from one registrar to the next. This means a supplier seeking registration should carefully select a registrar that has experience in the supplier's business field and the confidence of the supplier's customers. ISO 9000 Standards do not require registration per se. Once registered, six month follow-up reviews are typical. The contractor (or supplier in ISO 9000 language) chooses a method of evaluation. The supplier may choose to do a self-evaluation or self-declaration. An evaluation by the customer or buyer may also occur. In this case, the customer or "second party" conducts the evaluation of the supplier quality system. The third method of registration involves an evaluation by a third party independent of both the customer and the supplier.	Slide # II-18 <u>Reference</u>: 1.NISTIR 4721, What is Quality System Registration? 2. NISTIR 4721, Who Evaluates Quality Systems?

INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
Remember, it is the supplier's quality system that is "registered." This emphatically does not mean that the product or processes are "certified" as conforming to any requirements. Processes may be certified as conforming to given customer requirements by some means, but certification is typically separate from the evaluation for ISO 9000 registration.	Slide # I-18 (concluded)
ISO 9000 SERIES: ISO 9000 PROVISIONS VERSUS MIL-Q-9858A Some of the slides that follow include a discussion of Mil-Q-9858A, Quality Program Requirements. However, to conclude the discussions on ISO 9000, a simple conceptual comparison is in order between ISO 9000 and Mil-Q-9858A. First, as mentioned earlier in the history of the ISO 9000 series, Mil-Q-9858A was a predecessor used in the development of the ISO 9000 series. Consequently, some similarity should be expected between the two documents. There are also some differences. This slide lists some of the topics for which ISO 9000 places new or more emphasis than Mil-Q-9858A does. For example, the ISO 9000 family emphasizes support to the customer (who is generically the world marketplace). Increased emphasis is also placed on supplier organizational management systems, specifically quality assurance. ISO 9000 also looks for a organizational commitment to quality goals and objectives. Design control is a strong part of ISO 90001, and the element does an excellent job of integrating design activities and responsibilities with the quality system. Records are emphasized as an extremely important criteria for a quality product, as are internal audit traceability requirements.	Slide # II-19
ISO 9000 SERIES: ISO 9000 PROVISIONS VERSUS MIL-Q-9858A (CONCLUDED) Some of the ISO 9000 series areas of emphasis are similar to those also embedded in Mil-Q-9858A. Mil-Q-9858A was developed by a single customer, the Department of Defense. Thus, the specification specifically addresses the Government interface, whereas ISO 9000 applies to a generic customer interface.	Slide # II-20 <u>Reference</u>: ISO 9001:1994 Versus Mil-Q-9858A Requirements Comparison (Training)

INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
Mil-Q-9858A refers to the quality of the product, whereas ISO 9000 emphasizes the system. Similarly, Mil-Q requires a quality program, compared to ISO 9000 which requires a quality system. It should be noted that the military contract administration services considered the Mil-Q requirements as adequacy criteria for the contractor's quality management system. Mil-Q-9858A also frequently relies on requirements implemented in other military specifications such as Mil-C-45662, Calibration System Requirements. Federal agencies also supplement Mil-Q-9858A with other publications such as Mil-Std-1520C, Corrective Action and Disposition System for Nonconforming Material. ISO 9001 is self-contained. The handout shows a comparison of the ISO 9001 quality model elements against Mil-Q-9858A. Please review the matrix to gain an understanding of the scope of the requirements addressed by each methodology.	Slide # II-20 (concluded) Reference: ISO 9000: 1994 versus Mil-Q-9858A Requirements Comparison Instructor: Provide the students the handout entitled "ISO 9001:1994 Versus Mil-Q-9858A Requirements Comparison." Allow the students time to review the handout to better understand the similarities and differences between ISO 9001 and Mil-Q-9858A.
ISO 9000 SERIES: NASA ISO 9000 POLICIES AND IMPLEMENTATION NASA has issued NASA Management Instruction (NMI) 1270.3, NASA Quality Management System Policy. This NMI establishes the policy for the use of the ISO 9000 Standards by NASA and its suppliers. As the NMI states, incorporation of the ISO 9000 Standards by NASA and NASA suppliers will result in these benefits: · Mission success and optimum use of available resources · Increased productivity · Timely delivery · Cost effectiveness · Heightened environmental concern · Innovation and continuous improvement · Corrective action	Slide # II-21 Instructor: Provide the students a handout copy of the current issue of the NASA NMI 1270.3 ISO 9000 Standards policy. References: 1. NMI 1270.3, NASA Quality Management System Policy (ISO 9000), dated December 6, 1995 2. NASA Headquarters/ Code Q Briefing: ISO 9000 and NEQA by Carl Schneider, dated 7/24/95

INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
The policy establishes these general provisions: · NASA suppliers will have a quality management system that shall comply with the appropriate ISO 9000 series standard. · The NASA procuring activity may tailor or supplement standard requirements to ensure NASA procurements are met and that unnecessary requirements are not imposed. · Registration/certification is optional on the part of the procuring activity. · The criteria for determining compliance to the NMI will be established by the procuring activity.	Slide # II-21 (concluded)
ISO 9000 SERIES: NASA ISO 9000 POLICIES AND IMPLEMENTATION (CONCLUDED) NASA is pursuing the transition to ISO 9000 as its baseline quality management system. Implementation of the NMI 1270.3 policy has been initiated, but NASA is proceeding cautiously. The thrust of the NASA Agency direction is to apply ISO 9000 on new NASA procurements and to consider application to in-house operations. Field implementation plans have been submitted with a general implementation target of mid-1997. NASA Headquarters will continue to maintain close cooperation with other Federal Agencies and the industry associations. Headquarters is also interfacing with industry through another forum called Government Industry Quality Liaison Panel (GIQLP) with Code Q as the Agency representative to address ongoing initiatives.	Slide # II-22 Instructor: Obtain from HQ NASA/Code Q the current status of the initiatives. Provide the currently available NASA initiatives and status of efforts to the students. Reference: NASA Headquarters/Code Q Briefing: ISO 9000 and NEQA by Carl Schneider, dated 7/24/95

INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
MIL-Q-9858A/MIL-I-45208A: OVERVIEW As part of the Department of Defense Standards Reform Initiative, Mil-Q-9858A and Mil-I-45208A have been targeted for cancellation in October 1996. The initiative's thrust is to use performance and commercial specifications and standards in lieu of military specifications and standards. Notices have been issued against Mil-Q-9858A and Mil-I-45208A to transition to the ISO 9000 Standards Series. The DCMC ACO has been directed to make block changes for DOD contracts to use the contractor's plant-wide management systems. This chart begins with a background summary of Mil-Q-9858A and Mil-I-45208A. The original Mil-Q-9858 was developed by the Department of Defense and first issued April 9, 1959. The standard was revised once and reissued December 16, 1963, which happens to be the current version Mil-Q-9858A. Mil-I-45208A has a similar history. It was first released as Mil-I-45208 and then updated to its current Mil-I-45208A revision dated December 16, 1963. Both of these quality publications have been selected for rescission by the Department of Defense in October 1996. DOD is encouraging contractors and military programs to replace them with the ISO 9000 standards.	Slide # II-23 <u>Instructor</u>: Please obtain the current NASA Agency position on the use of ISO 9000 standards and the update of existing contracts in place of Mil-Q-9858A and/or Mil-I-45208A.
MIL-Q-9858A/MIL-I-45208A: SUMMARY OF SURVEILLANCE STRATEGY In brief, Mil-I-45208A establishes the requirements for a contractor's inspection systems. Mil-Q-9858A requires the establishment of a quality program by the contractor. Both require implementation through a contract. Of note, Mil-I strategy simply bases requirements on inspection and testing to substantiate product conformance. The intent of Mil-Q is more stringent because is requires a quality program. The quality program must be developed and documented by the contractor. A Mil-Q management system is subject to review and disapproval by the in-plant Government representative, which currently is DCMC.	Slide # II-24

INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
MIL-Q-9858A/MIL-I-45208A: SUMMARY OF KEY REQUIREMENTS This chart lists the quality system elements of Mil-I-45208A. This module will not include a discussion of each of the individual elements, but will note the types of requirements. Many are similar to Mil-Q-9858A and ISO 9001 in name, if not scope. Several of the elements refer to the Government instead of to the customer as in ISO 9001.	Slide # II-25
MIL-Q-9858A/MIL-I-45208A: SUMMARY OF KEY REQUIREMENTS (CONTINUED) Here are the quality system requirements as specified in Mil-Q-9858A. Again, note the types of system requirements. Also, note the similarity of several elements to those of Mil-I-45208A. We will make a closer comparison to ISO 9001 in a few moments. The remaining Mil-Q-9858A elements are shown on the next chart.	Slide # II-26
MIL-Q-9858A/MIL-I-45208A: SUMMARY OF KEY REQUIREMENTS (CONCLUDED) This chart provides the remaining Mil-Q-9858A quality system requirements. Note here again a strong reference to the Government in several of the elements. For example, the elements "subcontractor inspections" and "property procedures" specifically relate to the Government.	Slide # II-27
MIL-Q-9858A/MIL-I-45208A: EXAMPLES OF MIL-Q-9858A AND MIL-I-45208A APPLICATIONS This chart is provided to give examples of any existing NASA programs/projects that may still specify Mil-Q-9858A or Mil-I-45208A. Due to the evolving nature of current quality methodologies, a specific list of such contracts is not available. Please obtain current contract examples from NASA Headquarters or the appropriate Center procurement office.	Slide # II-28

INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
NASA contracts using Mil-Q-9858A and/or Mil-I-45208A quality requirements are steadily decreasing. In general, older NASA contracts issued more than a year ago base quality requirements on Mil-Q-9858A, Mil-I-45208A, and the NHB 5300.4 Series. As will be discussed in other training modules, NASA in general is moving towards contract methodologies based on the ISO 9000 Series Standards and Performance Based Contracting. What are some programs or projects that you know use Mil-Q or Mil-I as the basis of quality requirements?	Slide # II-28 (continued) <u>Note</u>: Performance-Based Contracting (PBC) is a Federal Government initative that centers on structuring all aspects of an acquisition around the purpose of the work to be performed. PBC contracts include explicit performance standards for the product delivered and use the standards for determining whether the work requirements have been met. Refer to NASA PBC training modules that are supplemental to the RMO training package. <u>Instructor</u>: If available, provide examples of current contracts usinng Mil-Q and/or Mil-I quality requirements. If not available, suggest the class be asked for programs or projects with which they might be familiar that use these quality requirements.

INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
MIL-Q-9858A/MIL-I-45208A: DIFFERENCES BETWEEN SPECIFICATIONS This chart highlights the general differences between the two military documents. Keep in mind, Mil-Q requires a much more involved quality effort by requiring the contractor to have a quality program. Mil-I emphasizes the need for an inspection and testing system. Mil-I will typically apply to small subcontractors and suppliers while Mil-Q will be specified for prime contractors or major/critical subcontractors.	Slide # II-29
MIL-Q-9858A/MIL-I-45208A: DIFFERENCES BETWEEN SPECIFICATIONS (CONCLUDED) As previously implied, Mil-I-45208A definitely has fewer quality requirements than those specified by Mil-Q-9858A. As a program, Mil-Q-9858A requires the inclusion of certain concepts that are not addressed at all in Mil-I-45208A. In addition to the scope of a quality program requirement, individual noteworthy aspects are included in this chart. Under Mil-Q-9858A, "the contractor shall maintain and use quality cost data as a management element of the quality program." A significant requirement contained in Mil-Q-9858A is the element 4.1 for drawings, documentation and changes. This requires the contractor to maintain a procedure addressing the adequacy, completeness, and correctness of drawings and the control of changes in design. Mil-Q-9858A further specifies provisions for production tooling, inspection equipment, and advanced metrology. Unlike Mil-I-45208A, Mil-Q additionally requires completed item inspection procedures and system procedures to manage handling, storage, and delivery.	Slide # II-30
GOVERNMENT RIGHT OF DISAPPROVAL The subject of the Government right of disapproval of contractor management systems was discussed earlier under *Overview* as well as in other training modules. The first half of this module, Contractor Management Systems, also covered the subject. Training Module III.C, *Contractor Interfaces - Prerogatives of Government to Disapprove Procedures*, also gives a broad discussion on the various types of in-plant Government rights such as data access and facilities access. The matter is important enough to recall the Government privileges.	Slide # II-31

INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
By virtue of contract terms and clauses such as the "Inspection Clause" cited from the FAR, the Government has basically unlimited rights to the contractor's facilities and data. Of course, this access is normally limited to the context and scope of the contract. In addition, the contract and FAR clauses require that certain systems will be specified for explicit approval. FAR Part 45 and 44, respectively, require the formal review and approval of the contractor property and purchasing management systems. The DCMC administrative contracting officer, if in residence, will typically perform this "approval." As an example of other FAR provisions, FAR Part 42, Contract Administration, outlines the requirement to conduct adequacy reviews of contractor engineering efforts and management systems that relate to design, development, production, engineering changes, subcontractors, tests, management of engineering resources, reliability, and maintainability. Mil-Q-9858A, if on contract, requires Government review and disapproval, if quality program procedures are unsatisfactory. The basis is there to disapprove use of management systems if deficiencies are significant enough to jeopardize fulfillment of contract requirements. The contracting officer will exercise this right. The message to remember is that currently most Government contracts provide this provision.	Slide # II-31 (concluded)
DCMC/CAS SYSTEM SURVEILLANCE In discussing contractor management systems and processes, it is important to mention the Defense Contract Management Command. This key Government organization, referred to as DCMC, has the mission to perform DOD contract administration services (CAS), which include support for NASA as well. As an organizational part of the Defense Logistics Agency (DLA), DCMC was formed in July 1990 from a consolidation of the military services CAS plant representative offices with the DLA Defense Contract Administration Services (DCAS). This merger centralized CAS for DOD programs under DCMC. Training module III.D, DCMC/DCAA Interface, provides information on the NASA agency interface with DCMC. Of importance to this training module, by virtue of defense contracts with many of NASA's major suppliers, DCMC will have a residence established in the contractor facilities. As such, DCMC will usually represent the Government in terms of assessments of facility-wide contractor management systems.	Slide # II-32 Note: Refer to training modules II.C, Federal Acquisition Regulation, and III.D, DCMC/ DCAA Interface, for related information

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These assessments can greatly influence the contractor's management systems. Per NASA FAR Supplement 1842.2 Assignment of Contract Administration, NASA will optimize use of available DCMC-provided contract administration support. In general, the DCMC mission is to perform the CAS functions defined in FAR Part 42. Specific functions are established in Part 42 for CAS performance as delegated or withheld by the contracting activity. Functional tasks for quality assurance, contracting, purchasing, property, engineering, and transportation are addressed. Training Module II.C, Federal Acquisition Regulation, outlines these functions. For NASA, the contract, the delegation, and any supporting memoranda of agreement (MOAs) between the NASA contracting office and the DCMC field office qualify the specific project support needed. Because of the broad range of products, contract types, and contractors, the performance of the overall CAS mission is quite complex. DCMC executes performance of the FAR requirements primarily by placing field offices in selected contractor facilities or by conducting surveillance on an itinerant basis. As a simple rule, in-plant residences are selectively assigned only for contractors with large dollar value or critical Government contracts. In turn, itinerant support usually occurs for the vendors or subcontractors. Again, this is a general rule as specific customer needs may dictate otherwise.	Slide # II-32 (continued)
As with many Government organizations, DCMC mission concepts are undergoing continuous review. Surveillance concepts referred to as Process Oriented CAS (PROCAS) and In-plant Quality Evaluation (IQUE) are worth mentioning since they directly relate to contractor management systems. The purpose of PROCAS is to accomplish the CAS mission across DCMC in a consistent, efficient, and effective manner using available resources. IQUE is the DCMC concept to examine the adequacy of contractor processes to produce conforming products and to identify opportunities for improvements. IQUE places heavy emphasis on statistical analysis of contractor process data.	Reference: DLAM 8200.5, In-plant Quality Evaluation Reference: DCMC Process Oriented Contract Administration Services (PROCAS)

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The PROCAS approach seeks continuous improvement by focusing on the prevention of problems and improvement of selected contractor processes. In essence, processes critical to contract needs are assessed by a joint Government and conductor team using agreed-to metrics and courses of action for corrective/preventative action. The approach relies on these principles: • Forming and conducting joint Government and contractor team efforts - formal agreements • Concentrating on selective processes needed for contract satisfaction • Using Performance Based Management for selected processes that impact fulfillment of customer requirements - emphasis on metrics IQUE supports the PROCAS approach by concentrating on the contractor's quality assurance processes. IQUE uses auditing and statistical techniques to assess the adequacy of processes to consistently satisfy contract requirements. Principles consist of the following: • Review and identification of processes relative to contract terms • Proofing of connector processes - examining stages for adequacy • Conducting product audits to test processes outcomes • Collecting and analyzing process data • Identifying process improvements	Slide # II-32 (concluded)
NASA REPORT 1018 Two reports play a valuable role in NASA monitoring of program and project contractors: NASA Form 1018 and NASA Form 533. We will discuss the 1018 report first.	Slide # II-33

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NASA-provided property for contractor use on a contract can add up to be of significant value, well into the millions of dollars. Rightfully then, contractor accounting of assigned property is justified. NASA Form 1018, Report of Government-Owned/Contractor-Held Property, is used for this purpose. The report provides NASA with the financial data on Government-furnished or contractor-acquired property in which title is vested with the Government. The report is required to be submitted for each contract by the prime contractor when the Government-Owned/Contractor-Held Property Clause is included as part of the contract. The prime contractor is responsible for including this reporting requirement in all first-tier subcontracts with Government-owned property. Instructions for preparing the report are included on the form itself with detailed instructions contained in NASA FAR Supplement (NFS) 18-45.71.	Slide # II-33 (concluded)
NASA REPORT 1018: THE FORM The form used for contractor accounting of assigned property is the NASA Form 1018; a sample is available for your review. In accordance with NFS 18-45.71, the report shall contain the following: · Basic contract information such as contract number, contract value, reporting period, and report status (i.e., initial, interim, negative, or final) · The type of property, its cost, and quantity for the reportable items on hand · Contractor-acquired property received and disposals made during the reporting period · Schedule I, which is the list of GFP additions and disposals to be used for Government analysis · Schedule II, which is a list of the Space Hardware Reportable Items directed by the contract or contracting officer The completed report is intended to provide an accurate annual accounting of the contractor assigned property. The type of property that is reported will fall into one of these classifications per NFS 18-45.71: • Land • Other Structures/Facilities • Leasehold Improvement • Space Hardware • Special Test Equipment • Buildings • Plant Equipment • Special Tooling • Material	Slide # II-34 <u>Instructor</u>: Provide students a sample NASA Form 1018

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Most of these property types are self-explanatory. Space hardware includes items such as aircraft, engines, space vehicles, satellites, spacecraft, and rockets including components. Space hardware will be reported only if directed by the contracting officer and identified in the Annual List of Selected Items of Space Hardware issued by the Director, Financial Management Division, NASA Headquarters.	**Slide # II-34 (concluded)**
NASA REPORT 1018: KEY POINTS **The report itself contains instructions for completion, but the detailed requirements are contained in NFS 18-45.71,** *Forms Preparation*. **Obviously, the contractor must generate the report and certify its preparation. The report is required to be submitted in an original and three copies. The original eventually goes to the Installation Financial Officer, and the copies go to the Property Administrator. Distribution may route the original and copies through the Administrator first. The report must be prepared annually and may be required more often as required by the contract.** **The Government Property Administrator reviews and analyzes the submitted report. The three copies are forwarded to the contracting officer with the Administrator's indication of the property system status.** **The NFS covers exclusion to the reporting requirements as well as specific reporting requirements for the space hardware. You should refer to the Form 1018 and the NFS for more details.**	**Slide # II-35** **Reference:** 1) **NASA Form 1018, Report of Government-Owned/Contractor-Held Property** 2. **NASA FAR Supplement 18-45, Government Property; Subpart 198-45.71, Forms Preparation**
NASA FORM 533: PURPOSE **NASA Form 533, NASA Contractor Financial Management Reports, is the official cost reporting document for cost type and fixed type contracts. The NF 533 form has these specific uses:** • **It enables NASA management to project program/project costs and hours. This ensures that dollar and labor resources are available to support the schedule in a realistic manner.** • **The report provides the means to evaluate contractor cost performance; Program/project resources can be adequately planned and monitored.** • **The report provides the basis to record cost in the NASA accounting system. This action establishes the Government liability.**	**Slide # II-36** **References:** 1) **NASA Handbook 9501.2, Procedures for Contractor Reporting of Correlated Cost and Performance Data** 2) **NASA FAR Supplement 18-42.72, NASA Contractor Financial Management Reporting**

INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
NASA Handbook 9501.2, *Procedures for Contractor Reporting of Correlated Cost and Performance Data*, **provides the policies and procedures for contractors and project managers to administer the contractor financial management reporting system. NASA FAR Supplement 18-42.72, NASA Contractor Financial Management Reporting, gives the requirements for NF 533 reporting.**	**Slide # II-36 (concluded)** **3) Financial Management Reporting for Contractors Course Guide, dated August 1994** **4) NASA Form 533M, Monthly Contractor Financial Management Report** **5) NASA Form 533Q, Quarterly Contractor Financial Management Report**
NASA FORM 533: THE FORM(S) **NF 533 actually consists of several versions or series of reports. Two reports, the NF 533Q and NF 533M, are used to accrue the contractor costs. A third report, NF 533P or its contract-permitted equivalent, provides performance measurement information on flight hardware research or development contracts of $25 million or greater. For our training purposes, the NF 533Q and 533M will be the primary focus. The forms are specifically as follows:** · **NF 533M: Monthly Contractor Financial Management Reporting** · **NF 533Q: Quarterly Contractor Financial Management Reporting** · **NF 533P: Contractor Performance Report** **For additional familiarity, sample NF 533 forms are available for your review. The contents of the forms will be addressed on the next charts.**	**Slide # II-37** **<u>Instructor:</u> Provide the students samples of the NASA Forms 533M, 533P, and 533Q.**

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NASA FORM 533: THE FORM(S) (CONTINUED) The first of the Form 533 reports to be addressed individually is the NF 533M, the monthly report. Looking at the form, you'll note it asks for the following: a) General information such as report period, contract value, contract number and type, and scope of work b) Information for both planned and actual costs and labor hours by reporting cost category for the reporting month; cumulative data is also provided (see columns 7.a through 7.b) c) The estimated cost and labor to complete the contract, listed in column 8; the contractor's estimated final cost and labor at completion (column 9) d) Unfilled orders in column 10 e) Most importantly, the contractor's signature For contracts greater than $500K and a period of performance of at least one year, the NF 533M is contractually required every month. The report is due from the contractor by the tenth operating day following the contractor's close of an accounting month. Distribution and number of copies will be per the contract. Properly submitted, the report should provide NASA managers with short-term visibility and projections on the project contract cost performance.	Slide # II-38
NASA FORM 533: THE FORM(S) (CONCLUDED) Although similar to the monthly report form, the NF 533Q provides a slightly different cost perspective. This report is the quarterly submittal of contractor financial information. Taking a look at the NF 533Q, you'll observe the following requirements for data input: • General information such as reporting quarter, contract value, contract number and type, billing amounts, and scope of work • By reporting category of cost, information for the cumulative actual cost incurred and labor hours through the first two months of the preceding quarter (see column 7.a). The estimate for the current month is entered in column 7.b; Column 7.c is the sum. • The estimated cost and labor to complete the contract is listed in columns 8.a-j; this gives a yearly projection broken down into the next three months in columns 8.a-c, and the three quarters following these three months in column 8.d-f; the next projected quarter is entered in column 8.g.	Slide # II-39

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· The estimate for the next FY is put in column 8.h and the estimate for contract balance in column 8.j. · The contractor's estimated final cost and labor at completion is shown in columns 9.a and b. · Unfilled orders amount goes in column 10. · Most importantly, the contractor's signature must be on the report. The NF 533Q is required for all cost-type or fixed-price incentive contracts with a total award amount greater than a $1 million and a period of performance greater than one year. The NF 533Q is submitted quarterly and is due to NASA no later than the fifteenth day of the month before the beginning of the new quarter being reported. Distribution and number of copies will be specified by the specific contract. Properly submitted, the NF 533Q gives cost and labor hour estimates spread over the contract life.	Slide # II-39 (concluded)
NASA FORM 533: KEY POINTS Preparation instructions for the NF 533s are contained in NHB 9501.2. The reports are a contractual requirement for the contractor to prepare. As indicated on our discussion of the form, the contractor must certify the reports by signing. Completion and submittal of the reports are only one element of reporting. There are basic requirements that must be met to ensure the validity and reliability of the data. The data reported must meet these requirements: · Contract traceability must exist; the baseline must be established and reconciled as changes are made to ensure traceability to the original contract. · New contract changes must reflect the cost effect on the work breakdown structure (WBS). · Changes to the original baseline must be reconciled. · The contractor's accounting system and accounting period should be used. · Contractor cost estimates should be based on the most current and reliable information; this means inclusion of potential overruns and underruns.	Slide # II-40 Reference: Financial Management Reporting for Contractors Course Guide, dated August 1994

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NASA FORM 533: KEY POINTS (CONCLUDED) When a contractor fails to comply with the contract requirements for reporting the NF 533s, the consequences may be severe. NASA may elect to penalize the contractor monetarily by decreasing the grade and amount of award fee (when included in the contract). Late submittal may also necessitate closer Government surveillance of the contractor's submitted cost and fee vouchers. If significant, the Government may elect to delay voucher payment or even return the voucher with no payment in accordance with FAR provisions. The individual contracts may specify other types of penalty. Procedures allow the contractor to submit supplemental information as part of the NF 533 reports. In addition, it is expected that the contractor should provide inputs on award fee calculations and adjustments (when included in the contract). The contractor should always provide information on adjustments required to the baseline, incurred costs that exceed fund limitation, and costs incurred in excess of ceilings. Changes in reporting methodology or supporting documentation should also be explained. Other factors such as technical rationale for schedule slips or technical problems should be provided. Information should also be provided for subcontractors as needed. The standard reporting system is defined in NMI 9501.1, NASA Contractor Financial Management Reporting System, and NHB 9501.2. Deviations from this standard system that relieve the contractor of reporting requirements requires Headquarters NASA Office of Procurement approval. Concurrence must also be received from the Director of Financial Management Division.	Slide # II-41

INSTRUCTOR NOTES	TRAINING MATERIALS AND SUGGESTIONS
SUMMARY We have covered the required topics for this particular training module. During this training, we covered overviews of the ISO 9000 Standards Series and Mil-Q-9858A and Mil-I-45208A specifications. We reviewed the Government approval and right of disapproval for contractor management systems. Based on available information, a quick review of DCMC involvement in surveillance activity was addressed. Finally, we discussed two key NASA reports required of contractors. The annual property report (NF 1018) for NASA contractor-held property was covered. Then, the financial NF 533 reports were briefly described and discussed.	Slide # II-42
WHERE TO OBTAIN MORE INFORMATION This slide provides sources of additional information concerning ISO 9000 standards and Mil-Q and Mil-I specifications.	Slide # II-43