

ISO 9000 and NASA

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The International Organization for Standardization (ISO) was created in 1946 to help postwar Europe achieve harmonized product specifications. In 1987, the initial first five series standards were released in the U.S. through the American National Standards Institute and the American Society for Quality Control; in 1994 the standards were released in a second edition. Today, ISO 9000 is a world wide standard adopted by more than 100 countries.

The NASA Administrator has directed the Agency to become ISO 9000 certified by a third-party registrar by September 1999. While NASA is a leader in science and technology development, the Administrator also wants the space Agency to become a leader in quality and the lead federal Agency for quality management.

ISO 9000 consists of a flexible minimum set of requirements. It is not a project-oriented specification, nor a guarantee of high quality hardware. It is not another "layering of requirements," explained Carl Schneider of Code Q. Rather, it is an international conformance standard adopted by most industrialized nations that can be contractually imposed on contractors to assure consistent product quality.

Quality has always been part of NASA culture. In the 1970s, NASA's quality process was defined in NHB-5300.4 (1B) dated 1969 to detect defects and make corrections. The shift from "inspect in quality" to "design in quality" came in the 1980s with more emphasis on process control than product. A balance was achieved in the 1990s with a further shift from motivational programs such as TQM, quality circles and zero defects to output/outcome, the "what" instead of the "how to." ISO 9000, which ensures consistency, not quality, thus fits perfectly in a system that requires you to "Say what you do . . . Do what you say . . . Prove it."

The ISO standard pertaining to the most comprehensive Quality Management Systems (ISO 9001) addresses 20 elements covering contract review, design control, product identification and traceability, inspection and test status, corrective and preventative action, internal quality audits, training, statistical techniques and more. Certification in this area has the potential to save suppliers and customers considerable cost since it minimizes duplicative customer audits of suppliers. In a global economy, it promotes international competition due to its internationally accepted certification process. Finally, ISO 9001 independently assures compliance of contractor QMS as it relieves customers of many supplier audits.

ISO 9000 is driven by customers' deliverables and key process. It yields a structured and documented management system consisting of a quality policy manual, consistent procedure across departments, intra-departmental work instructions and data control. It aligns NASA to commercial best practices in quality management by ensuring consistent approaches and systems within and between centers.

NMI 1270.3, "*NASA Quality Management Systems Policy (ISO 9000)*," dated December 6, 1995, applies to NASA Centers and suppliers. The Administrator's guidance of November 1996 requires Marshall, Johnson and Stennis Centers to achieve third party certification by April 1988 and all other locations by September 1999. Currently, the White Sands Test Facility is the only site that is ISO 9000 certified.

NASA is the first federal Agency to make a commitment to ISO 9000 certification, although the Department of Defense abolished MIL-Q-9858 in September 1996 and issued a policy directive to remove impediments of imposing ISO 9000 in contracts. Also, the Federal Aviation Administration is

promoting AS 9000, a derivative of the ISO 9000. In a November 13, 1996 letter to NASA officials and directors, the Administrator said: "We must also be leaders in the world of quality" as demonstrated through ISO 9001 certification. "I am also expecting that all our suppliers will step up to the challenge."

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Carl Schneider ended his breakout session with a quotation from a quality guru: "You don't have to do this," said W. Edwards Deming, "survival is not compulsory."