BY L.L. "BUDDY" CRESSIONNIE

Ready for Takeoff

Revision of AS9100 expected this fall

THE INTERNATIONAL Aerospace Quality Group (IAQG) is putting finishing touches on the next revision of AS9100,[1] the quality management system (QMS) standard for the aviation, space and defense (AS&D) industries.

AS9100 is based on and includes all of ISO 9001, which is scheduled for a minor amendment this fall. This amendment is triggering the revision of AS9100, which will include not only the ISO 9001:2008 changes, but also changes determined to be essential to the continual improvement of AS9100. These changes will include:

- Expanding the scope to include the defense sector.
- Adding or revising requirements to meet stakeholder needs.
- Complying with IAQG's strategy.

The first draft of the AS9100 revision was developed in July 2007 after extensive data mining from stakeholders. An AS9100 coordination draft to receive input to the added or revised requirements was sent to all stakeholders in November 2007.

The IAQG 9100 team then met in April to deal with the 182 comments received regarding the coordination draft and used the design specification to ensure a disciplined process in the evaluation of all comments.

AS91000 changes and additions being considered for inclusion meet the following requirements:

- Constitute QMS requirements that are not contractual or contain product specific requirements.
- Enhance clarity of requirements or address stakeholder needs.
- Satisfy the needs of the broad IAQG 9100 user community through requirements that are suitable for use by all sizes and types of organizations in the AS&D sectors.
- Provide benefits that outweigh the impact of implementation.
- Are not prescriptive (establish what but not how) and can be audited.

The IAQG 9100 team also planned deployment support material and discussed synergies with other IAQG strategies and

The **IAQG 9100 team** plans to offer **support material.**

standards. Major changes from the existing standard to the AS9100 ballot draft, which was released in May, are detailed in Table 1 (pp. 60-61).

Release schedules

The approved AS9100 comments and ISO 9001 amendments were included in an AS9100 ballot draft that was issued for IAQG member company voting in May. The team expects AS9100:2008 to be completed about one month after ISO 9001:2008, which is scheduled to be released in October.

The IAQG 9100 team plans to have deployment support material available concurrent with the completion of AS9100. These materials will include a press release on the main changes, frequently asked questions, overview training material and coordination actions planned with other IAQG standards and documents impacted by AS9100 changes.

Other IAQG standards and documents that will be updated shortly after the revised AS9100 standard include AS9101[2] on QMS assessment, AS9110 for maintenance organizations and AS9120 for stockist distributors.

Additional IAQG standards and documents, such as AS9102,[3] which covers the aerospace first-article inspection requirement, and AS9103,[4] which addresses variation management of key characteristics, will be reviewed for updates later.

The third-party (other party) registration transition period for AS9100 has not yet been determined but is expected to be two to three years after publication.

Any questions about AS9100 can be e-mailed through the IAQG website at www.iaqg.sae.org/iaqg/publications/SDRs_listing.pdf (case sensitive).

Turn the page for a summary of the major changes in the AS9100 revision. **QP**

REFERENCES
1. *IAQG (AS/EN/JIS-Q) 9100—Quality Management Systems—Aerospace—Requirements*, IAQG, 2004.
2. *IAQG (AS/EN//SJAC) 9101—Quality Management System Assessment*, IAQG, 2006.
3. *AS9102, Aerospace First Article Inspection Requirement, SAE International*, 2004.
4. *AS9103, Variation Management of Key Characteristics*, SAE International, 2001.

Major AS9100 changes / TABLE 1

AS9100 scope	The scope will be changed from aerospace to aviation, space and defense to recognize that complex systems can include multiple sectors. The U.S. Department of Defense was interested in this change so it could contractually flow the AS9100 QMS into defense procurements. It is hoped this scope expansion into defense will result in additional recognition and synergies with NATO-allied quality assurance publications.
	The application section was clarified to help organizations know when to apply AS9100 instead of *AS9110—Quality Management Systems—Aerospace—Requirements for Maintenance Organizations*[1] or *AS9120—Quality Management Systems—Aerospace—Requirements for Stockist Distributors.*[2]
QMS requirements imposed by customer, statutory and regulatory authorities	The requirement to include quality system requirements imposed by regulatory authorities when developing QMS documentation is currently required by clause 4.2.1.
	This requirement was broadened to include customer and statutory authorities and was moved to the revision's clause 4.1 dealing with general requirements. The movement to clause 4.1 addresses customer and applicable statutory and regulatory QMS requirements within the entire organization's QMS. In the past, this requirement could be interpreted to apply only to QMS documentation.
Introduction of a new term, "special requirements"	Special requirements are those identified by the customer or determined by the organization that have high risks to being achieved, thus requiring their inclusion in the risk management process. Factors used in the determination of special requirements include product or process complexity, past experience and product or process maturity. Examples of special requirements include performance requirements imposed by the customer that are at the limit of state-of-the-art, or requirements determined by the organization to be at the limit of their technical or process capabilities.
Introduction of a new term, "critical items," including key characteristics	Critical items (for example, functions, parts, software, characteristics and processes) are those having significant effect on product realization and use of the product. They include safety, performance, form, fit, function, producibility and service life, all of which require specific actions to ensure they are adequately managed. Examples of critical items include safety critical items, fracture critical items, mission critical items and key characteristics.
New clause 7.1.1, project management	This new AS9100 requirement provides additional emphasis on planning and managing product realization activities (product life-cycle) in a structured and controlled way to meet requirements at acceptable risk and within resource and schedule constraints. ISO 10006[3] can be used as an information resource for organizations that might want insight on how to apply project management using ISO 9001's principles and structure.
New clause 7.1.2, risk management	This new AS9100 requirement involves implementation of a risk management process throughout product realization (product life-cycle).
	The stated requirement for risk management within the current version of AS9100 is to understand risk during review of requirements related to the product during contracting activities. Risk management, to some extent, has always been at least inferred by QMSs through planning and preventive action processes. The new risk management clause requires organizations to establish a process for managing risks to achieving customer, statutory and regulatory requirements.
	The process should consider: assignment of responsibilities for risk management; criteria for risk acceptance; identification, assessment and communication of risk; and identification, implementation and management of actions to mitigate risk.

Major AS9100 changes / TABLE 1 (CONTINUED)

Moved configuration management to clause 7.1.3 and added more detail	This clause was moved from 4.3 to 7.1.3 to focus on product configuration management and to add requirements in keeping with ISO 10007, the configuration management standard.[4] Even though configuration management was moved to clause 7, AS&D organizations will be expected to have a configuration management process appropriate to the product. Any section 7 exclusions are required to be justifiable and not affect the organization's ability or responsibility to provide product that meets customer and applicable statutory and regulatory requirements.
Moved control of work transfer to clause 7.1.4	This clause is being broadened to include all work transfers, not just temporary production transfers as in the current AS9100. Therefore, work transfer was moved from clause 7.5.4 (production) to clause 7.1.4 to have a process to plan and control all transfer activities within product realization.
Added a note to consider using recognized certifications as part of the supplier control process	A note was added into clause 7.4.1 for organizations to consider using supplier quality data from objective and reliable external sources, such as AS9100 other-party certification, for use in the supplier selection and evaluation process.
Moved first article inspection to clause 7.5.1.1 and renamed production process verification	This is the formal requirement to validate production processes, documentation and tooling for the first production run of a new part or assembly and to repeat the process when necessary (engineering or manufacturing processes changes). In moving this from 8.2.4.2 (measurement) to 7.5.1.1 (production), the intent remains the same but is now worded to be applicable to all AS9100 stakeholders.
Product quality and on-time delivery performance	This new requirement is added to clauses 5.2 and 8.2.1. It requires product conformity and on-time delivery be measured and appropriate actions be taken if planned results are not achieved. This reinforces the IAQG objectives to link QMS and organizational performance.
Formal monitoring of customer satisfaction data	This revision has added a requirement in clause 8.2.1 to monitor customer satisfaction data and develop improvement plans that address deficiencies. This addition will promote continuous improvement of the product and customer satisfaction.

REFERENCES
1. *IAQG (AS/EN) 9110—Quality Management Systems—Aerospace—Requirements for Maintenance Organizations*, IAQG, 2003.
2. *IAQG (AS/EN) 9120—Quality Management Systems—Aerospace—Requirements for Stockist Distributors*, IAQG, 2002.
3. *ISO 10006:2003—Quality Management Systems—Guidelines for Quality Management in Projects*, ISO, 2003.
4. *ISO 10007:2003—Quality Management Systems—Guidelines for Configuration Management*, ISO, 2003.

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