U.S. Air Force Earns High-Flying Results With Quality Management Specifications for Suppliers

by Janet Jacobsen

The year was 1992 and a typical supplier quality audit conducted by the U.S. Air Force’s Air Combat Command (ACC) Project Management Squadron was a laborious process for the auditors and the contracting suppliers alike. When a cadre of 8-12 Air Force auditors descended on a contractor’s site several times a year, it typically left behind 200-225 deficiencies. Suppliers were simply treading water—unable to improve their quality systems because so much time was required to address the volumes of often minor deficiencies uncovered during the frequent audits.

This was also the year that John Gray was assigned to the quality assurance (QA) division of ACC’s Program Management Squadron. Now a civilian, but at the time an Air Force master sergeant, Gray served as a quality assurance manager working with the ACC’s suppliers. He quickly realized that the Air Force’s auditing philosophy, with a heavy emphasis on inspection, had turned his division into the suppliers’ quality control function. Gray and fellow team members Deane A. Smith, David L. Straight, and Master Sergeant William J. McKee were determined to end the inspection-based mentality and shift the responsibility for ensuring the quality of goods and services squarely back on the shoulders of the suppliers.

About the Air Combat Command of the U.S. Air Force

The U.S. Air Force’s Air Combat Command (ACC) is headquartered at Langley Air Force Base in Virginia, where its Acquisitions Management and Integration Center manages large-scale supplier contracts. Among six major programs administered by the center is the Hemispheric Radar Systems (HRS) contract (for the other five programs, see “Supplier Specifications Cover Programs That Ensure National Security”). The HRS contract, awarded to ITT Industries’ Systems Division, provides air surveillance in support of U.S. and allied nations’ counter-drug efforts in South America. The mission of the HRS program, which is part of the global war on terrorism, is to reduce the influx of drugs, money laundering, and arms trafficking that has infiltrated the southern hemisphere.

As the HRS program’s prime contractor, ITT operates and maintains radar and communication equipment at nine sites located in Florida, and throughout Colombia, Ecuador, and Venezuela.
Finding a Quality Solution in ISO 9000

While searching for an effective quality solution, Gray attended his first ASQ Annual Quality Congress, now the World Conference on Quality and Improvement, held in Chicago in the spring of 1995. Here, Gray began learning about the ISO 9000 quality management system (QMS) standards, which were gaining prominence in the United States during the mid-1990s. Shortly after the conference, Gray attended a course conducted by Stat-A-Matrix on the ISO 9000 series and government. “After this course I knew that ISO 9001 made sense for us and that we should request that our suppliers become compliant to the standard,” Gray recalls.

Supplier Specifications Cover Programs That Ensure National Security

In addition to the Hemispheric Radar Systems program, the U.S. Air Force Air Combat Command’s Program Management Squadron also utilizes the ISO 9001 compliance/CQA requirement for the following programs that play key roles in the country’s national security operations:

- **Over the Horizon Backscatter Radar Systems (OTH-B)**, a program designed to detect early warning of enemy aircraft and ballistic missiles aimed toward the United States. The contractor is Native Energy Technology.
- **Tethered Aerostat Radar System (TARS)** is positioned along the southern U.S. border to detect illegal arms and narcotics trafficking. The contractor for this program is Native Energy Technology.
- **Forward Operation Location-Base Operations Services (FOL-BOS)** is located in Manta, Ecuador, and in Curacao, a Caribbean island located just north of Venezuela. This program’s mission is the early detection of illegal arms and narcotics trafficking from South America to the United States. DynCorp International is the contractor for this program.
- **Predator (MQ-1) Unmanned Aerial Vehicle** is the multi-mission aerial weapons system for reconnaissance and strategic elimination of activities by enemies such as terrorists and insurgents in Iraq and the Taliban in Afghanistan. The contractor is General Atomics.
- **Consolidated Aircraft Maintenance (CAM)** is located at Holloman Air Force Base in New Mexico. This is the T-38 aircraft training program designed to provide training efficiency for Air Force pilots. The program’s contractor is DynCorp.

Adding the CQA to Contract Specifications

While the Air Force’s suppliers were highly cooperative in becoming compliant—or in many cases registered to ISO 9001—it soon became apparent that many were not effective at truly implementing a quality system based on the standard. At the same time, for their internal use, Gray and his QA division partners were studying the Certified Quality Auditor (CQA) credential offered by ASQ. He explains that the Air Force’s auditing program lacked training on topics such as managing the audit function, creating an audit plan, and conducting a process audit. “We jumped on the CQA program and thought that was what our contractors needed as well. We decided (in 1997) to ask that each supplier’s management representative earn the certification,” says Gray, a CQA.

Knowing a CQA would be on staff managing the supplier’s QMS, Gray felt the Air Force would have more confidence in that quality system. The supplier would be better equipped to deploy what was written in the QMS, and the audit teams would be better able to assess the effectiveness of the system since the auditors and the suppliers would be speaking the same quality “language.” Gray continues to participate in a few contractor audits each year as well as perform desk audits as part of the supplier selection process.

Implementing a Supplier Specification for ISO 9001

Gray says he and his team were able to gain buy-in for his ISO 9001 compliance plans by showing Air Force management the “pain” that resulted from the current supplier-auditing program. His proposal was also bolstered by the Department of Defense, which had recently adopted the ISO 9000 standards, as well as by the policy letters on the use of ISO 9001 in government that he’d obtained through the Stat-A-Matrix course. Once Gray’s proposal was approved, the QA division implemented the supplier management plan using five key steps:

1. The division conducted a market research project to assess suppliers’ attitudes on adopting ISO 9001 compliance as a contract specification. Gray reports that an overwhelming majority of suppliers were in favor of the idea.
2. The ACC made compliance, not necessarily third-party registration, with ISO 9001 a contract specification.
3. To emphasize that the supplying contractor is responsible for quality, the ACC made ISO 9001 compliance part of its source selection evaluation criteria.
4. Contracts were awarded based on whether the supplier met, exceeded, or didn’t meet the new criteria. When a new supplier is selected, the QA division communicates its expectations through a briefing during the post-award or pre-performance meetings.
5. Auditors from the QA division received training on how to assess a QMS that is based on ISO 9001.
Partnering for Compliance—an Auditor’s Viewpoint

Leading the QA division’s HRS auditing team is Stephen Decker, flight chief, quality assurance. A 22-year veteran of the Air Force, Decker is stationed at Patrick Air Force Base near Cocoa Beach, Florida. As the flight chief or lead auditor, Decker performs supplier audits to ISO 9001, as well as scheduling the audits, making audit plans, and conducting audit analysis.

Decker reports the biggest benefit of the ISO 9001/CQA specification is having a common language that is understood by the QA division and its suppliers. “[Suppliers] are much more customer-focused when they follow the standard and much more proactive than reactive,” Decker notes.

He says the most common nonconformances that he and his fellow auditors uncover involve:

- Compliance with government-mandated regulations, manuals, and directives
- Logistics
- Compliance with environmental, safety, and health requirements
- Documenting preventive actions

Walking the ISO 9001 Talk

Interestingly, for the first decade that the QA division requested ISO 9001 compliance from suppliers, the division itself wasn’t registered to the quality standard. Decker says the QA division lacked credibility because it asked for compliance when it wasn’t registered itself. To overcome this issue, the unit earned third-party registration to ISO 9001 in 2005 and in doing so became the first Air Force unit to achieve this accomplishment solely for a dedicated second-party audit function.

Supplier Specifications Result in Fewer Defects, Reduced Audits, and Improved Communication

According to Gray, one of the primary benefits realized from the supplier quality management specifications is an almost complete elimination of critical (anything that could adversely affect the mission, equipment, personnel) nonconformances or defects. He says the audit staff now has a better understanding of systemic, versus isolated, issues and this has significantly reduced oversight costs.

As Figure 1 shows, critical defects from four ACC programs (see “Supplier Specifications Cover Programs That Ensure National Security” for more information on these programs) fell from 20 in 1995, before the ISO 9001 specification was put into effect, to just three critical defects in 2005.

Additional cost savings have come from reduced audit expenses as shown in Figure 2. As this chart depicts, audit costs for four ACC programs were reduced by half, from $1.4 million in 1995 to $700,000 in 2005. Much of this cost reduction was realized through a reduced audit schedule. Previously, the second-party audits for the HRS program were conducted on a 30-day rotation. This eventually shifted to every 60 days, and now supplier audits are scheduled on a 90-day rotation for each radar site.

From the Supplier’s Perspective

Tim Nolan, quality control manager for ITT Systems Division, which is the sole contractor for the HRS program, says his company was very supportive of the ISO 9001 and CQA specifications because they level the playing field for all military contractors.

Figure 2 Second-Party Audit Costs

Covers four programs: FOL*, OTH-B, TARS, HRS
Dollars in Million per Year. *FOL started in 2000

Figure 3 ITT Systems’ Equipment Reliability Statistics

Covers four programs: FOL*, HRS, OTH-B, TARS
*FOL started in 2000
sees open communication between his company and the Air Force—based on using the common language of ISO 9001—as the biggest benefit of the quality management specifications.

Under its contract with the Air Force, ITT Systems is required to maintain a 98.5% uptime for radar equipment to track potentially suspicious air traffic in the designated regions of South America. Figure 3 shows the radar equipment’s reliability in relation to ITT’s contractual requirements with the military. As the scatter-plot diagram depicts, just once has the system reliability fallen short of the contractual requirement in more than two years, and on only four occasions has ITT not reached its far more aggressive internal reliability goal.

“Now we are at the best point we’ve ever been at as far as quality and quality assurance; it doesn’t even compare to the 1990s,” states Nolan, a CQA. “A significant contributor is the ISO 9001 standard and the emphasis it places on quality.”

Looking to the Future and New Quality Goals

Balanced Scorecard Approach

Not content to rest on past success, Gray, now assigned to the new standards branch, plans to move the supplier management program toward a balanced scorecard approach in the future. With this new direction Gray hopes to focus not just on technical metrics, but also on how well the supplier’s management team is really assessing the effectiveness of the company’s quality system. Gray says the new branch is working with internal and external customers to develop a combination of qualitative and quantitative metrics with a balanced scorecard approach to have a greater focus on how services are managed.

Focusing on the Fundamental Principles of ISO 9001

Now that suppliers are comfortable with compliance to ISO 9001, the auditing teams are focusing attention on the eight fundamental principles of the ISO 9000:2000 series of standards:

- Customer focus
- Leadership
- Involvement of people
- Process approach
- System approach to management
- Continual improvement
- Factual approach to decision making
- Mutually beneficial supplier relationships

“We want to know the supplier’s philosophy, policies, how they’re going to deploy [the standard], and how well it’s integrated throughout the entire [quality management] system as we try to move toward the business management aspect of this,” Gray notes.

Guidance From ISO 9004

The standards branch is also beginning to look at ISO 9004, which provides guidance beyond ISO 9001 in considering both the effectiveness and efficiency of a QMS and the potential for improving an organization’s performance, as a means to build contract award fee programs and for suppliers to use as a guideline for improving their services to the Air Force. While the use of ISO 9004 won’t be contractually required, Gray indicates that suppliers are encouraged to use it as a guideline for performance improvement.

In the End, Quality Saves More Than Time and Money

While the ACC and its key suppliers are thrilled with the decline in critical defects and the savings in time and money that are attributed to the supplier management program, perhaps it’s the hidden benefits that are most important. Without the outstanding uptime for radar availability in the HRS program to help fight drug trafficking, says Gray, “You can’t hunt down the bad guys and make drug arrests.” And, for any one untracked airplane that succeeds in delivering cocaine or other drugs to an American city, an untold number of lives would be negatively affected.

For More Information:

- To learn more about the mission of the U.S. Air Force’s Air Combat Command, visit the command’s Web site at http://www.acc.af.mil/.
- For further information on ITT Industries Systems Division, see www.ittsystems.com.
- Details about ASQ’s Certified Quality Auditor (CQA) program are available at http://www.asq.org/certification/quality-auditor/index.html.
- The International Organization for Standardization (ISO) at www.iso.org and the American National Standards Institute (ANSI) at wwwansi.org both offer detailed information on the ISO 9000 family and other management system standards.

About the Author

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