Third Party Supplier Certification Programs

Creating Confidence and Credibility
Agility to Innovate, Strength to Deliver

- National leader in technical innovation for more than 50 years
- Technologies for civil, defense, intelligence, commercial and international customers
- Leading subject-matter experts across broad engineering & science disciplines

WorldView-2 Image Courtesy of DigitalGlobe
Sydney Opera House  October 20, 2009
11 days after satellite launch
Quick Facts

- **2010 sales:** $713.7 million

- **Over 1 million square feet of state-of-the-art facilities**
  - 24 clean rooms, covering 50,780 ft\(^2\) in Boulder and Broomfield
  - 32 SCIFs and closed areas, totaling more than 185,000 ft\(^2\)
  - Leading-edge Detector Technology Center
  - Advanced universal collimator assemblies for alignment and performance testing of optical systems
  - First-class RCS/RF anechoic chamber to test antennas

- **Employee statistics:**
  - Average tenure 10 years
  - Attrition <4%
  - 30% of employees have advanced degrees
  - Nearly 40% of employees have security clearances
Ball Aerospace Facilities

- Colorado Springs, CO
- Broomfield, CO
- Westminster, CO
- Albuquerique, NM
- Albuquerque, NM
- Warner Robins, GA
- Chantilly, VA
- Lanham, MD
- Arlington, VA
- Warner Robins, GA
- Seattle, WA
- Boulder, CO
- Boulder, CO
- Broomfield, CO
- Colorado Springs, CO
- Fairborn, OH
- Washington, DC
- Chantilly, VA
- Chantilly, VA
- Southern Pines, NC
- Warner Robins, GA
- Washington, DC
- Arlington, VA
- Arlington, VA
- Lancaster, PA
Markets & Capabilities

Space Hardware
- Space segments
- LEO spacecraft
- Sensors and instruments
- Mission enabling components

Tactical Hardware
- Arrays and antennas
- All-light tactical cameras
- Tactical components

Information & Intelligence
- Data processing and exploitation
- Engineering and technical services
- Intelligence tools and products
Recent Accomplishments

SBSS Launch
September 25, 2010

Comet Hartley 2 Encounter
November 4, 2010

Kepler Launch
March 7, 2009

STPSat-2 Launch
November 19, 2010

NPP Instrument
Integration Complete

WorldView-2 Launch
October 8, 2009
Third Party Certifications

ISO

International Organization for Standardization is the world’s largest developer and publisher of International Standards.

- Writes and publishes standards but does not provide certifications. The USA member is ANSI (American National Standards Institute)
- Certifications are performed under the IAF (International Accreditation Forum) using the requirements ISO17021

AS9100

Industry managed under SAE administration

- Aviation and Space products and services
- Land and Sea based systems for defense applications
- Other Party Management Team (OPMT) is the industry-controlled oversight committee chartered to manage the Industry-controlled Other Party (ICOP) process for certification of organizations to the AS9100 series of standards.

Nadcap

Industry managed under PRI administration, a not-for-profit SAE affiliate. PRI’s two main programs are:

- Nadcap: An industry-managed, consensus approach to OEM oversight of special process and product suppliers.
- PRI Registrar: An ANSI-ASQ National Accreditation Board-approved Registrar accredited to certify organizations to a variety of management systems including ISO 9001, AS9100, and ISO 14001.
**Definitions**

- **Accreditation** refers to the formal recognition by a specialized body – an accreditation body (AB) – that a certification body (CB) is competent to carry out certification in specified business sectors.

- **Certification** refers to the issuing of written assurance (the certificate) by an independent body (CB) that it has audited a management system and verified that it conforms to the requirements specified in the standard.

- **Registration** means that the auditing body then records the certification in its client register (OASIS, Nadcap eAuditNet). So, the organization’s management system has been both certified and registered.

- In simple terms, certificates issued by accredited certification bodies (CB’s) may be perceived on the market as having increased credibility.
Approximately 29,000 organizations in the United States are ISO 9001 certified.

Approximately 42,000 organizations in North America are ISO 9001 certified.

More than one million organizations worldwide are ISO 9001 certified.

There are ISO 9001 certified organizations in 178 countries/economies.

Worldwide, ISO 9001 certifications grew by almost 82,000 from 2008 to 2009 - an increase of more than 8%.

From http://www.anab.org/resources/fast-facts.aspx

At least 1,064,785 ISO 9001 certificates had been issued in 178 countries through December 2009

Whose mission is to:

Achieve significant performance improvements in Quality, Delivery, and consequently Cost, on all products and services throughout the value stream.
AAQSC vs. AAQG - Structure

SAE Institute

Americas Sector, Inc
Americas Aerospace Quality Group (AAQG)

AAQG Leadership Team

Americas Representation To the IAQG (10 Voting Members)
Registration Management Committee (RMC)
AAQG Council (20 Voting Members)

AAQG Council

G-14 Americas Aerospace Quality Standards Committee (AAQSC)

AAQG Projects Chair

AAQSC Chair
AAQG Fast Facts

- **OASIS Entries – as of Dec 2010**
  - 2007: 5114
  - 2008: 5972
  - 2009: 6969
  - 2010: 5987  (note that data is not yet complete)

- **Current certifications - OASIS data as of February 7**
  - AS9100B: QMS for Aviation, Space and Defense Organizations: 12,570
  - AS9100C: QMS for Aviation, Space and Defense Organizations: 33
  - AS9110: QMS for Aviation Maintenance Organizations: 355
  - AS9120: QMS for Aviation, Space and Defense Distributors: 916

- **Americas Sector (Includes Canada and south America)**
  - Accreditation Bodies (AB): 2
  - Certification Bodies (CB): 41
  - Auditor Authentication Bodies (AAB): 1
  - Approved Training Providers (ATP): 14
  - Aerospace Experienced Auditors (AEA): 478
  - Aerospace Auditors (AA): 221
Third Party Certification Global Influence - Nadcap Fast Facts

Nadcap Programs

- **Special Processes**
  - Nondestructive Testing (NDT)
  - Materials Testing (MTL)
  - Heat Treating (HT)
  - Coatings (CT)
  - Chemical Processing (CP)
  - Welding (WLD)
  - Nonconventional Machining & Surface Enhancement (NMSE)

- **Systems & Products**
  - Aerospace Quality Systems (AQS) : AC7004
  - Fluid Distribution Standards (FLU)
  - Elastomer Seals (SEALS)
  - Sealants (SLT)
  - Composites (COMP)
  - Electronics (ETG)

### 2010 Sector Breakdown

<table>
<thead>
<tr>
<th>Sector</th>
<th>Audits Performed</th>
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<tbody>
<tr>
<td>Americas</td>
<td>2438</td>
</tr>
<tr>
<td>EU</td>
<td>1175</td>
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<tr>
<td>Asia</td>
<td>537</td>
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Third Party Certification Value

- Common QMS requirements across the industry
  - ISO9000
  - AS9100
  - AS9003
  - Nadcap to AC7004 checklist

- Prime contractor oversight

- Nadcap Process audits

James Webb Telescope
The inconsistency of ISO 9000 auditing methods, approaches, and interpretations is a growing concern among all stakeholders. Auditor certification bodies and registrar accreditors are beginning to receive questions and complaints relating to the consistency of auditors.
“Counterfeit” certifications (Virtual Cert™ Program for ISO9000)

- Program is based on the "honor system"
- The total cost is as low as US $500.00 per year

ISO 9001: 2000/2008 “MAINTENANCE OF CERTIFICATION” CHECKLIST

- 1) Enclose Check per Schedule “A” of Contract
- 2) Enclose Current Management Review Meeting Minutes*
- 3) Enclose Evidence of Current Internal Audits*
- 4) Copy of Any Recent On-site Customer Audits (past year)

THAT'S IT!

Do Your Homework!!!
What Do We Do at Ball Aerospace

- **Auditor Credentials**
  - ASQ certified auditors
  - Received AS9100 lead auditor training
  - One AEA certified auditor who will be going to the AAQG auditor sanctioned training
  - Received special process training depending on the assigned commodities. For example
    - Soldering/conformal coating
    - Testing
    - NDT
    - ICE-3000 counterfeit part inspection certification
  - Participate in industry audits, i.e. JAPC/Goddard/LMA
    - Exposes the auditors to methods being used at other companies

- **Supplier QMS Validation**
  - Require the supplier to complete a self assessment which reveals all third party certifications
  - Initial supplier approval site audit
What Do We Do at Ball Aerospace

- **OASIS Database Monitoring**
  - All suppliers AS9100 certification verified via the OASIS database
    - No such database for ISO
  - All suppliers with an AS9100 certification put on the OASIS watch list
    - Monitor changes in certification, reaccreditation, company changes
  - Feedback for CBs and ABs

- **Nadcap database monitoring**
  - Verify all Nadcap supplier certificates in eAuditNet
    - [https://www.eauditnet.com/eauditnet/ean/user/login.htm](https://www.eauditnet.com/eauditnet/ean/user/login.htm)

- **Performance Monitoring**
  - Quarterly Supplier Performance Monitoring

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F-35 Lightning II Joint Strike Fighter Antennas
Participation With Industry

- Engage with industry to provide oversight and continual improvement in third party certification schemes
  - Voting Member of the AAQG/RMC/AAQSC(G-14)
  - Participate in AAQG oversight audits
  - Member of the NASA JAPC
  - Voting member of SAE standards committees
  - Nadcap subscriber
    - Member of the Nadcap Management Council
    - Member of three commodity task groups

Purpose
- Establish and maintain a dynamic cooperation based on trust between Americas aerospace companies on initiatives to make significant improvements in quality performance and reductions in cost throughout the value stream.
- Initial focus is to continuously improve the processes used by the supply chain to deliver consistently high quality products, thereby reducing non-value added activities and costs.

Deep Impact Encounter With Comet Tempel 1
As Viewed By The Flyby Spacecraft
July 3rd, 11:52pm MDT