N on- D estructive T esting Newsletter

July 2008

Issue Highlights

Editors

Phil Keown

Mark D Aubele

James E Bennett

Louise Belak

NadcapNDT

From the Chair…..

As the mid-point of another year approaches, more evidence of the dynamic program that is known as Nadcap exists in industry. At virtually every aerospace industry meeting there is a report on the Nadcap program. This program has ingrained itself into the fabric of the aviation/aerospace world, and its impact continues to grow. The PRI initiatives focusing on global supplier development, hiring of more auditors in Asia, translation of checklists and handbooks into French, Japanese, and soon Chinese, are more evidence of Nadcap as an international presence. We also welcome Raytheon and Volvo Aero as the latest user primes who accept Nadcap accreditation in specific regions.

As Nadcap grows globally, the challenges increase. Issues surrounding Licensing and Export Control are becoming more prevalent. Ensuring auditors with the correct authorizations, or having suppliers provide PRI with the needed information in these areas, is a growing concern. It is imperative that suppliers provide PRI with their US Customer name (Prime), sub-tier suppliers involved, the part number, part description, program or platform name, US Munitions List category (ITAR) and any License/License Exemption/ Agreement Number. Not having this information up front causes delays in the scheduling and performance of the audits, at a minimum, and increases the potential for ITAR/EAR violations. If suppliers are not aware of whether the work performed is export controlled, or requires a license, they need to find out! Learning all of this while the auditor is performing the audit, or after, is not the way to go!

The July 2008 meeting is the platform for Auditor Training. This opportunity is taken to work with the auditors to hone their skills and knowledge, sharing best practices amongst each other. Using the auditors' knowledge and experience also helps the Task Group understand problems faced by the auditors and suppliers to improve the quality of the Nadcap experience.

I look forward to the usual large turnout for the upcoming meeting in Pittsburgh, and hope to see many new faces and personalities helping to infuse the meetings with energy and new ideas. Have a safe, healthy and invigorating summer!

Phil Keown – NDT Task Group Chair

Nadcap Meeting Schedule

2008	Location
July 21-25	Pittsburgh, USA
October 6-10	Yokohama, Japan

NDT Newsletter – Want to be on the Circulation?

The NDT newsletter is published periodically throughout the year. The newsletters are read by the subscribing Nadcap Users, Suppliers, Auditors and anybody that happens to click on the latest NDT newsletter on the PRI website (**www.pri-network.org**). The aim of the newsletter is to communicate information relating to NDT within the Nadcap program to improve processes and to promote the sharing of best practices at all levels.

Have you stumbled across the NDT Newsletter by chance? Want to receive it on a regular basis? Keep up-to-date with the latest Nadcap NDT information by getting added to the distribution list! To receive notification when a new edition has been published, please e-mail Kellie O'Connor at **koconnor@sae.org** with your name, company and email address.

Kellie O'Connor – NDT Committee Service Representative

Responsible Level 3

There appears to be a lot of misunderstanding surrounding the concept of "Responsible Level 3" as defined in NAS 410. The interpretation from many suppliers and primes is to have a separate individual assigned to each method, or an individual certified in all methods, identified as the Responsible Level 3. In fact, NAS410 requires there be one individual, and only one individual, identified as the Responsible Level 3. That individual must be certified to the requirements of NAS 410 "…in ***one*** or more methods". This person, to be identified in writing, is responsible for the ***qualification and certification*** program used by the employer. The Responsible Level 3 is responsible for developing and implementing a program to meet the requirements of NAS 410, not for an individual NDT method. If the individual named is not a certified level 3 in all methods used by the employer, additional Level 3 ***Examiners*** "…may be identified and delegated in writing as necessary to provide coverage for all methods used by the employer." So, the Responsible Level 3 does NOT have to be certified in all of the methods used by the employer. But he/she IS responsible for the qualification/certification program as it applies to all methods used by the employer.

An Examiner, as defined by NAS 410, "A Level 3 certified to [NAS 410] and designated by the Responsible Level 3 … to administer all or part of the qualification and certification process, excluding vision examinations, in the NDT method(s) in which the Examiner is certified."

In summary, there is one, and only one, Responsible Level 3 for each company. This individual is responsible for the overall qualification/certification program for the employer. Additional Level 3 Examiners may be utilized if the Responsible Level 3 is not certified in all methods used by the employer. The Responsible Level 3 must be a certified level 3 in accordance with NAS 410 in at least one method. Examiners shall be level 3 certified, in accordance with NAS 410, in the method for which they act as examiners.

The AIA NDT Working Group, the entity responsible for the content of NAS 410, worked hard to better define the role of the Responsible Level 3 in the recently issued Revision 3 (March 2008). Please read the paragraphs dealing with Responsible Level 3, and Examiners, to better understand the concept of each. This subject will also be discussed at the upcoming meeting in Pittsburgh to try to help people grasp the requirements concerning the Responsible Level 3.

Phil Keown – NDT Task Group Chair

New Procedures

By the time you read this article: two Nadcap Operating Procedures (NOP's) which impact the program will be in place. The procedures are for Supplier Merit (NOP-008) and the Audit Failure Process (NOP-011). If you have not already reviewed these revised procedures, then please take a look. They can be found in eAuditNet (www.eAuditNet.com), under View User Documents.

James E Bennett – NDT & Fasteners Senior Staff Engineer

eQuaLearn

eQuaLearn to exhibit at Aero Engine Expo 2008

On October 29 - 30, 2008, eQuaLearn will exhibit at Aero Engine Expo 2008 in Paris, France. The exhibition will be free to visit for anyone who pre-registers before the deadline. In addition to being able to walk the exhibition floor, all visitors may attend the Open Seminar programme.

This is the first time that the exhibition has been held in Paris - in previous years, the event has taken place in London, UK.

Learn more and register to attend at **www.aeroengineexpo.com**

Top 5 Checklist Findings for 2007 – AC7114/1/2/3/4

The following article concludes data on the top 5 findings from December 2006 – November 2007 in regard to the non-conformances issued for the method specific checklists (AC7114/1/2/3&/4). As a reminder the data is broken down into paragraph references and not number or classification of NCR's. The simple reason is the classification and grouping of NCR's can vary depending on the situations identified during the audit. Paragraph references identify the number of times a particular paragraph in a checklist is referenced within an NCR. This provides more accurate and reliable information to evaluate.

AC7114/1

Penetrant Procedure (para 4.3.14)

All required process controls called out in section 5 of this checklist?

This is one of those 'catch alls' in terms of process control checks. Instead of identifying each control separately in the procedural section, they are grouped into one. Clearly it is not surprising to see this as part of the top 5 NCR's for PT, if system performance and degradation checks were in the top 5. Consider however that this includes other control checks in addition to the ones already specified.

Penetrant System Performance (para 5.9.1)

Has the supplier performed an initial check to establish a baseline for each known defect standard and material in use?

This is no surprise to most. While it can be said that the audit handbook has changed on a couple of occasions the expectation in terms of creating a baseline for each known defect standard is the same. Unless a TESCO (NiCr) panel is being used it has always been the intent that a photograph of the known defect standard must be produced to baseline the results. Each day the same known defect standard is processed on the PT line and the results obtained are compared to the photograph. If the results are comparable, the system performance test is identified as a Pass. It is for this reason that the photograph must represent the actual results obtained when the known defect standard was baselined. Any differences between the two would result in a process failure requiring some form of investigation to understand why a difference was detected.

Some examples of NCR's:

- Photograph not used
- Photograph was not in color
- Photograph is not 1:1 representation
- The photograph did not adequately represent the known defect standard (indications were blurry)

Penetrant System Performance (para 5.9.4)

Did the facility properly demonstrate this check?

Coming in at a very close second place is another system performance check aspect that has caused issuance of a number of NCR's. That is specifically in terms of performing the system performance check correctly. While a company may have a procedure and photograph in place to address the requirement, the issue in this case is correctly performing the check.

Some examples of NCR's:

- The photograph was not used - The inspector accepted the system performance check based on the number of indications identified on the known defect standard meeting the minimum requirement.
- The known defect standard provided better results than the photograph and as a consequence, the system performance was declared as acceptable.
- The photograph provided better results than compared to the known defect standard. However based on the minimum number of indications detected (meeting certain user prime requirements), the system performance check was considered acceptable.

The photograph and known defect standard must look the same; otherwise the system performance check is considered failed.

Penetrant Degradation check (para 5.9.6)

Is a degradation check performed for the known defect standard at least annually?

Historically, some user primes require a degradation check, some do not, and some require a different frequency period for the check. This was a consensus agreement between user primes and suppliers that led to checklist inclusion of this requirement as part of creating a 'level playing field' for all to meet (this includes user primes meeting the requirement in terms of NUCAP accreditation). The main reason for the write up was based on companies not performing the check or including any reference within the procedures.

Penetrant Degradation check (para 5.9.7)

Is the stated tolerance for the degradation check +/-30% of the baseline measurement?

In the majority of cases this is tied in with the para 5.9.6 (identified above) in terms of the degradation check not been performed, however there are occasions where the procedure simply does not address the tolerance requirements.

AC7114/2

Procedure / Technique (para 4.3.11)

Does the written procedure, general or specific, contain the following information as a minimum – Magnetic field strength and location of gauss / tesla measurements if QQI's are not used?

This is not a new requirement in terms of the industry standard, however to some the requirement is new. If QQI's, notched shims, 'tell tales', 'castrol strips' or some other name given, is not being used, it is necessary to adequately address the field strength and the location on the positioning of the tangential field strength meter in the procedure / technique card. If the positioning is demonstrated incorrectly or the readings are different, a non-conformance will result.

Procedure / Technique (para 4.3.14)

Does the written procedure, general or specific, contain the following information as a minimum – Areas of the part(s) to be examined including an illustration; either a drawing or photo?

In the majority of cases, this NCR has been issued to companies who are new to the Nadcap program for NDT or companies that have not processed parts with traceability to the industry standard (ASTM-E-1444). For those companies not previously required to use drawings or photographs to meet customer requirements for technique / procedure writing, this requirement would be considered new, therefore any new or revised techniques / procedures written since the release of the new checklist (December 2006) must contain drawings / photographs to show how the part is to be examined.

NDT Process Control – Black Light (UV) Meters and Measurements (para 5.4.7)

Is the minimum acceptable limit 1200 µW/cm2 at 15 inches (38cm)?

Although this requirement is not identified in the top 5 for PT, this was one of the main changes that came with the baseline for both PT and MT. This type of non-conformance can be broken into two sections, procedural and procedural/compliance.

Procedural – The procedure still identifies 1000 µW/cm2; however the control check log sheet has been changed to reflect the correct requirement.

Procedural / Compliance – The procedure and control check log sheets require 1000 µW/cm2, while the actual intensity exceeds the requirements, the system is not set up to identify any value less than 1200 µW/cm2 as unacceptable.

NDT Process Control – White Light Meters and Measurements (para 5.5.3)

Is the light meter accurate to within +/- 5% of the standard?

A number of white light meters subject to calibration were found to be calibrated using a tolerance of +/-10% and not +/-5%. In some cases the meter was found actually to be in tolerance when using +/-10%, but out of tolerance when +/- 5% tolerance is applied.

Compliance – Part Processing (para 7.5.4)

Were parts properly magnetized in accordance with the procedure or technique sheet?

It is important for the individual processing the part to process in accordance with the approved written instructions as defined in the procedure / technique. It is not acceptable to deviate from the current process even if the process defined is incorrect. The purpose of the compliance section is to verify compliance to the requirements. If a technique or process is found to be incorrect, the auditor expects to see the system in action. Therefore if information is incorrect, how does the supplier propose to resolve the issue? Does the procedure / technique need to be modified to address different parameters, acceptance criteria? Is level 3 consultation necessary? Does an internal non-conformance need to be issued? Etc.

AC7114/3

NDT Process Control – Equipment Calibration (para 5.1.2)

Do records provide evidence that all instrument/system channels in use are calibrated in accordance with ASTM-E-317, MIL-STD-2154 - Table II, EN 12668, AMS-STD-2154 or manufacturers recommendations?

When equipment is sent out to a calibration agency for calibration the minimum requirement for the baseline is that the equipment is calibrated in accordance with ASTM-E-317, MIL-STD-2154 - Table II, EN 12668, AMS-STD-2154 or manufacturers recommendations. The main reason for this NCR is that there are no records of the check being carried out or the records that are available do not provide evidence that the equipment has met the required standard, i.e., there is little or no information on the documentation provided by the calibration service.

NDT Process Control – Equipment Calibration (para 5.1.3)

Is scanning and indexing equipment verified to ensure complete coverage of the area of interest?

Where scanning and indexing equipment are used, and calibration is required by the customer, the minimum requirement for the baseline is that the tolerance, on the movement, is equal to or better than ± 0.1 inches (± 0.25cm). The main reason for this NCR is that the check is not being carried out.

NDT Process Control – Equipment Calibration (para 5.1.3.2)

Is scanning and indexing equipment verified to ensure complete coverage of the area of interest?

Does the scanning and indexing equipment permit measurement of the scan and/or index distances within ± 0.1 inches (0.25cm)?

Are records of this verification on file and do they provide evidence of acceptable results?

Where scanning and indexing equipment are used, and calibration is required by the customer, the minimum requirement for the baseline is that the tolerance, on the movement, is equal to or better than ± 0.1 inches (± 0.25cm). The main reason for this NCR is that there are no records of the check being carried out or the records that are available do not provide evidence that the equipment has met the required standard i.e. there is little or no information on the documentation provided by the calibration service.

NDT Process Control – Equipment Calibration (para 5.1.6)

Is there a procedure in place that addresses re-verification of scanning and indexing equipment if maintenance or modifications are performed?

Where scanning and indexing equipment are changed, modified or if maintenance is carried out the minimum requirement is that the procedure defines that the scanning and indexing equipment are checked again to ensure that the tolerance, on the movement, is equal to or better than ± 0.1 inches (± 0.25cm). The main reason for this NCR is that there is nothing in the suppliers' procedure which defines this requirement although they may be actually carrying this requirement out in practice. It appears that the NDT department/Level 3 have missed the requirements in the checklist due to a poor review.

Compliance – Inspection (para 6.10.8)

Was a system standardization check performed per technique?

The minimum requirement for the baseline is that a system standardization check be performed and that this check will be defined as per the technique or procedure. The main reason for this NCR is that the operator does not carry out the check as defined by the technique/procedure or the technique/procedure does not define the requirement.

For the technique/procedure not defining the requirement then it appears that the NDT department/Level 3 have missed the requirements in the customer specification/checklist due to a poor review. For the operator missing the defined requirement, were they trained on this requirement? Did they fully understand it? During overviews was the operator seen to do it correctly?

AC7114/4

NDT Process Control – Automatic Processor (para 5.2.3)

Are the results recorded within +/-10% film density required of the original standard radiograph?

Use of incorrect tolerances such as +/-15% instead of +/- 10%.

NDT Process Control – Automatic Processor (para 5.2.6)

Has a batch of film been dedicated to the processor performance test?

A self explanatory requirement, however this has been the most common finding in RT.

Film Viewing Area – White Light Meter (para 5.6.5.3)

Is the light meter accurate to within +/-5% of standard reading?

This is similar to MT (AC7114/2). A number of white light meters subject to calibration were found to be calibrated using a tolerance of +/- 10% and not +/- 5%. In some cases the meter was found actually to be in tolerance when using +/-10%, but out of tolerance when +/- 5% tolerance is applied.

Film Viewing Area – Viewing Densities (para 5.6.9)

Are maximum viewing densities determined by a standardized procedure?

Not a new requirement but does appear to identify issues in terms of NCR's. NCR descriptions range from using the wrong type of light meter to not conducting the check correctly.

Compliance – Film Viewing (para 6.7.1)

Was film verified for proper identification, density and quality level?

At the time of the audit, the individual failed to correctly verify the quality and density levels of the film. If a regular job is being processed it is still necessary to verify the film, even if an individual has shot, processed and inspected the same job for years. It is especially critical if one individual is shooting the part, another individual is processing the film and an inspector is assessing the film. If the film is not verified, then the necessary quality / density levels cannot be confirmed.

Summary

1. As indicated in the February 2008 newsletter in regard to AC7114, the key factor to obtain and maintain Nadcap accreditation for NDT is PREPARATION. Take the time to conduct a thorough pre-audit (as required by AC7114) to verify compliance with the requirements. When a question is answered as YES, ensure there is objective evidence to substantiate where the requirement is addressed and complied with. Assuming a requirement is met without verifying may result in the issuance of an NCR.
2. The handbooks (HB Series) are referenced with the checklists and used to outline the expectation of the NDT Task Group when answering the checklist questions. Use them.
3. Implement the requirements immediately. As soon as notification is received of a change to the requirements, the supplier is expected to begin implementation within the required time frames. Do not wait to comply with the requirements until 30 days prior to the next Nadcap audit. A supplier holding an accreditation is required to comply with those latest requirements, similar to when a customer specification requirement is changed. Remember - to assist in identifying changes to the documents there is a vertical line on the left hand side of the paragraph number on the applicable page. Make every effort to fully review the changes accordingly to determine if this affects your system or not.
4. Every effort is made to communicate (to all companies accredited for AC7114) the latest requirements to the checklist / supplement / handbook. This is done by NDT Newsletters, NDT Task Group Meeting minutes and not to mention the mass e-mail system. In regard to mass e-mails, when changes are made to the NDT audit criteria, PRI will notify all companies via an e-mail that is issued from the system. The e-mails are distributed to the single point of contact identified by the company for NDT. It is the company's responsibility to make sure the contact information is correct and up to date in eAuditNet.
5. Compliance - Ensure NDT personnel are relaxed [as much as possible] sufficiently and comfortable to perform the compliance jobs. The auditor expects to witness how NDT personnel perform the required processes per the checklist and customer requirements in the same manner as when the auditor is not present. If an aspect of the process is performed incorrectly and the individual is unaware of their error, then the issue will be written as a non-conformance. If the individual performs an aspect incorrectly and realizes the error, provided they identify the issue independently and resolve it, they have performed exactly as required. Also the auditor will record what they see, if the individual does not show or explain what is being witnessed (or not), then a write up could occur. There is no problem talking to the auditor if it helps to explain the situation. Answer questions clearly if the auditor asks a question, but if something is not understood, then remember to ask for clarification.

James E Bennett & Phil Ford - NDT Senior Staff Engineers

Compliance Jobs – Availability of Hardware

Compliance jobs are the backbone of the Nadcap NDT audit. This is the auditor's opportunity to witness all the aspects that are addressed within the procedural system to ensure compliance to the requirements. Observing the compliance jobs begins at the purchase order and drawing stage all the way to processing the parts, evaluating and signing off on the jobs. But there is a lot that goes into the compliance section. In order for the Task Group to be satisfied that a company is capable of obtaining and maintaining Nadcap NDT accreditation, the Task Group expects the auditor to witness at least three aerospace jobs for each method. The compliance jobs should comprise of user prime hardware. However in the event that user prime hardware is not covered the Task Group requires the auditor to review up to three 'paper' compliance audit packages for each method. If a compliance job is not witnessed, then the checklist cannot be answered YES in terms of compliance. If the answer cannot be answered YES, then the only answer is NO (as N/A does not exist – deliberately). On that basis the Task Group requires the auditor to issue an NCR if the required number of compliance jobs cannot be witnessed. Please take every step possible to ensure compliance jobs are available for the audit. In the most severe cases, if compliance jobs cannot be witnessed, the Task Group may require an additional audit to witness the outstanding jobs. Consider the following:

Are there any parts in dispatch / shipping waiting to be delivered or picked up?

In such cases, use these parts. Understand that parts may be urgent; however your customer is keen for their supplier base to maintain Nadcap accreditation. Parts may be held back for a short period of time (in some cases an additional half day). Auditors are more than happy to work with the company to prevent excessive delays for the sake of the compliance section.

The company does not have user prime parts available for the audit, but other aerospace jobs are available.

Use these parts. Paper audits will be required to address those user primes not addressed.

Only two compliance jobs are available. The company employs more than two inspectors.

Spilt the jobs to allow three inspectors to process and inspect the two part numbers. If the batch cannot be split, then two inspectors will process and inspect the same part. Controls to prevent the two inspectors from interacting prior to completion of the job will be necessary. Also splitting of any jobs will need to comply with internal requirements.

Company has three compliance jobs available and only two inspectors.

One of the inspectors will process and inspect two jobs.

Company has three compliance jobs available and only one inspector.

Inspector will process and inspect all three jobs.

Company has two compliance jobs and only two inspectors

One of the inspectors will process and inspect two parts.

Company has only one compliance job with multiple parts

Split the job accordingly to allow three inspectors to process and inspect.

James E Bennett - NDT & Fasteners Senior Staff Engineer

Supplier Voting Member Representatives of the NDT Task Group

Suppliers	Representative	Status	E-mail contact
AAA Plating & Inspection Inc. Compton, CA	Robert Custer	Supplier Voting Member	bob@aaaplating.com
Bodycote Testing (MTET) Europe United Kingdom	Alan W. Parsons	Supplier Voting Member	parsons.a@bodycote-mt.com
Carpenter Technology Corp. Reading, PA	Edward Macejak	Supplier Voting Member	emacejak@cartech.com
E. M. Inspection Leicester, United Kingdom	Andy Bakewell	Supplier Voting Member	andy.bakewell@emcol.co.uk
GKN Aerospace Services East Cowes, United Kingdom	Michael Watts	Supplier Voting Member	michaelwatts@gknaerospace.com
Hitco Carbon Composites Gardena, CA	D.E. “Skip” McDougall	Supplier Voting Member	mcdougall.skip@hitco.com
Alcoa Power & Propulsion Whitehall, MI	Ryan Soule	Supplier Voting Member	rsoule@howmet.com
Mitchell Labs Pico Rivera, CA	David Mitchell	Supplier Voting Member	david.mitchell@mitchell-labs.com
NDT Inspection & Testing Ltd Worcester, United Kingdom	Paul Evans	Supplier Voting Member	paul.evans@ndt-inspection.co.uk
New Hampshire Ball Bearings, Inc. Peterborough, NH	Richard King	Supplier Voting Member	rking@nhbb.com
Orbit Industries Inc. Middleburg Heights, OH	Gary White	Supplier Voting Member	gwhite@orbitndt.com
Praxair Surface Technologies Weston-Super-Mare, United Kingdom	Bob Gifford	Supplier Voting Member	robert_gifford@praxair.com
TEAM Industrial Services TCM Division Cincinnati, OH	Cindy Roth	Supplier Voting Member	croth@teamindustrialservices.com
West Penn Non-Destructive Testing Inc. New Kensington, PA	N. David Campbell	Supplier Voting Member	ndcampbell@westpenntesting.com
West Penn Non-Destructive Testing Inc. New Kensington, PA	Mark Pompe	Alternate / Supplier Voting Member	mpompe@westpenntesting.com
X-R-I Testing Cleveland, OH	William B. Evridge	Supplier Voting Member	bille@xritesting.com

Prime Representatives of the NDT Task Group

Prime	Representative	Status	E-mail contact
Airbus S.A.S Toulouse Cedex, France	Yves Esquerre	User / Voting Member	yves.esquerre@airbus.com
Airbus S.A.S Filton Bristol, UK	Trevor Hiscox	User / Voting Member	trevor.hiscox@airbus.com
Alenia Aeronautica Naples, Italy	Davide Salerno	User / Voting Member	dsalerno@aeronautica.alenia.it
Avio Torino, Italy	Massimo Colombo	Member	massimo.colombo@aviogroup.com
BAE Systems (Air Systems) Preston, UK	Chris Dootson	User / Voting Member	chris.dootson@baesystems.com
BAE Systems (Air Systems) Brough, UK	Chris Young	Alternate / User / Voting Member	chris.young@baesystems.com
Bell Helicopter Textron Ft. Worth, Texas – USA	Jim Cullum	Alternate / User / Voting Member	jcullum@bellhelicopter.textron.com
Bell Helicopter Textron Ft. Worth, Texas – USA	Ed Hohman	Alternate / User / Voting Member	ehohman@bellhelicopter.textron.com
Bell Helicopter Textron Ft. Worth, Texas – USA	Tyler Ribera	User / Voting Member	tribera@bellhelicopter.textron.com
The Boeing Company Mesa, Arizona – USA	Bob Reynolds	User / Voting Member	bob.s.reynolds@boeing.com
The Boeing Company Seattle, Washington – USA	Peter Torelli	User / Voting Member	peter.p.torelli@boeing.com
The Boeing Company Philadelphia, Pennsylvania – USA	Louis Truckley	Alternate / User / Voting Member	Louis.r.truckley@boeing.com
The Boeing Company St. Louis, Missouri – USA	Douglas Ladd	User / Voting Member	douglas.l.ladd@boeing.com
Bombardier Belfast, UK	Bobby Scott	User / Voting Member	bobby.scott@aero.bombardier.com
Bombardier Belfast, UK	Eric McIlroy	Alternate / User / Voting Member	eric.mcilroy@aero.bombardier.com
Cessna Aircraft Company Wichita, Kansas – USA	Greg Hall	User / Voting Member	ghall2@cessna.textron.com
Eaton Aerospace Jackson, Mississippi – USA	Steven Garner	User / Voting Member	stevewgarner@eaton.com
Eaton Aerospace North Charleston, North Carolina - USA	Greg Robinson	Alternate / User / Voting Member	gregoryprobinson@eaton.com
Eurocopter, France Marignane Cedex, France	Thierry Jacques	User / Voting Member	thierry.jacques@eurocopter.com
GE Aviation Lynn, Massachusetts – USA	Phil Keown	Chairman / Alternate / User / Voting Member	philip.keown@ae.ge.com
GE Aviation Cincinnati, Ohio - USA	Ron Rodgers	User / Voting Member	ron.rodgers@ae.ge.com
Goodrich Aerostructures Riverside, California – USA	Chuck Alvarez	Alternate / User / Voting Member	chuck.alvarez@goodrich.com
Goodrich Aerostructures Chula Vista, California – USA	Richard Costantino	User / Voting Member	richard.costantino@goodrich.com
Goodrich Landing Gear Cleveland, Ohio – USA	Robert Rainone	Alternate / User / Voting Member	bob.rainone@goodrich.com
Hamilton Sundstrand Windsor Locks, Connecticut – USA	Michael Mitchell	User / Voting Member	mike.mitchell@hs.utc.com
Hamilton Sundstrand Windsor Locks, Connecticut – USA	Scott Iby	Alternate / User / Voting Member	scott.iby@hs.utc.com
Hamilton Sundstrand Rockford, Illinois – USA	Roger Eckart	Alternate / User / Voting Member	roger.eckart@hs.utc.com
Hawker Beechcraft Corporation Wichita, Kansas – USA	Rick Friesen	User / Voting Member	Rick_friesen@hawlerbeechcraft.com

Prime Representatives of the NDT Task Group (continued)

Prime	Representative	Status	E-mail contact
Hèroux Devtek, Inc. (Landing Gear Div) Longueuil, Quebec, Canada	Kirk Whalen	User / Voting Member	kwhalen@herouxdevtek.com
Hèroux Devtek, Inc. (Landing Gear Div) Longueuil, Quebec, Canada	Serge Labbè	Alternate / User / Voting Member	slabbe@herouxdevtek.com
Hèroux Devtek, Inc. Kitchener, Ontario, Canada	Walter Tonizzo	Alternate / User / Voting Member	wtonizzo@herouxdevtek.com
Honeywell Aerospace Phoenix / Tempe, Arizona – USA	D. Scott Sullivan	Alternate / User / Voting Member	dscott.sullivan@honeywell.com
Honeywell Aerospace Phoenix, Arizona – USA	Robert Hogan	User / Voting Member	robert.hogan@honeywell.com
Honeywell Aerospace Phoenix, Arizona – USA	Pat Thompson	Alternate / User / Voting Member	pat.thompson2@honeywell.com
Lockheed Martin Corp, Bethesda, Maryland - USA	Ron Levi	User / Voting Member	ron.levi@lmco.com
Lockheed Martin Corp. Marietta, Georgia - USA	R.J. (Jerry) Smith	Alternate / User / Voting Member	r.j.smith@lmco.com
MTU Munich, Germany	Manfred Podlech	User / Voting Member	manfred.podlech@muc.mtu.de
MTU Munich, Germany	Juergen Burchards	Alternate / User / Voting Member	juergen.burchards@muc.mtu.de
Northrop Grumman Corporation Littlerock, California - USA	Stephen Bauer	User / Voting Member	stephen.bauer@ngc.com
Parker Aerospace Fort Worth, Texas – USA	Dale Norwood	Alternate / User / Voting Member	dnorwood@parker.com
PParker Aerospace Irvine, California – USA	Gary Gathman	User / Voting Member	ggathman@parker.com
Parker Aerospace Moncks Corner, South Carolina – USA	Gary O'Neill	Alternate / User / Voting Member	goneill@parker.com
Pratt & Whitney UTC East Hartford, Connecticut – USA	David Royce	Secretary / User / Voting Member	david.royce@pw.utc.com
Pratt & Whitney UTC East Hartford, Connecticut – USA	Jim Fowler	Alternate / User / Voting Member	james.fowler@pw.utc.com
Rolls-Royce Corporation Indianapolis, Indiana – USA	Andrea Steen	User / Voting Member	andrea.m.steen@rolls-royce.com
Rolls-Royce PLC Derby, UK	Andy Statham	Vice Chair / User / Voting Member	andy.statham@rolls-royce.com
Rolls-Royce PLC Derby, UK	Chris Stevenson	Alternate / User / Voting Member	christopher.stevenson@rolls-royce.com
SAFRAN Group France	Alain Bouchet	User / Voting Member	alain.bouchet@snecma.fr
Sikorsky Aircraft Stratford, Connecticut – USA	Mike Clark	User/Voting Member	mclark@sikorsky.com
Spirit AeroSystems Tulsa, Oklahoma, USA	Frank Whittaker	Alternate / User / Voting Member	frank.c.whittaker@spiritaero.com
Spirit AeroSystems Wichita, Kansas – USA	David H. Vaughn	User / Voting Member	david.h.vaughn@spiritaero.com
Textron Systems Wilmington, Massachusetts – USA	Carl Roche	User / Voting Member	croche@systems.textron.com
United Space Alliance Cape Canaveral, Florida – USA	Leo Going	User / Voting Member	claude.l.going@usa-spaceops.com
United Space Alliance Cape Canaveral, Florida – USA	Brandon Irlbeck	Alternate / User / Voting Member	brandon.irlbeck-1@ksc.nasa.gov
Vought Aircraft Industries, Inc. Dallas, Texas – USA	Greg Rust	User / Voting Member	rustgr@voughtaircraft.com
Vought Aircraft Industries, Inc. Dallas, Texas – USA	Mike Shiplett	Alternate / User / Voting Member	shiplmi@voughtaircraft.com

Professional Development

PRI offers the following professional development programs designed for the quality community:

Internal Auditing: How to Plan & Perform Internal Audits – This 2-day course teaches participants how to develop and implement an internal audit program and how to perform successful audits of all types. Internal Auditing is a key component of any quality management program and PRI's course will ensure that your internal audits will become an effective continual improvement tool.

What participants are saying:

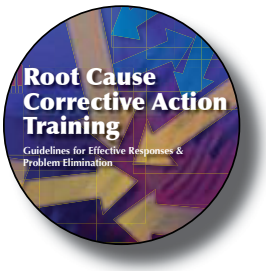
"The instructors, seminar material, and the experience and knowledge I gained were excellent."

- Dieter Frentzen
Goodrich Control Systems, GmbH

Upcoming dates:

11-12 August ..... Seattle, WA, USA

15-16 September..... Charleston, SC, USA



Root Cause & Corrective Action – This 7-hour training course shows participants how to conduct a thorough root cause analysis and implement preventive action to effectively eliminate the sources of non-conformances and ensure continual improvement in your operations.

What participants are saying:

"The information presented and the skills taught are so important that seminar attendance should be required of all suppliers."

- Johanna Lisa
Continental Heat Treating & Quality Heat Treating

Upcoming dates:

17 September .....Charleston, SC, USA

17 September .....India

Each of these courses is offered at locations throughout the world and can also be scheduled at your facility and/or customized to your company's needs. For more information and to register, please go to **www.eQuaLearn.com**

Customer Solutions and Support

Did you spot the cube logo on the front page? Wondered what it means? - PRI has created Customer Solutions and Support initiatives, which exist to provide quality customer-driven and cost-effective business solutions to continually improve organizations throughout the world. As a result of these initiatives, a new logo has been introduced which represents the many different ways that PRI can support businesses by identifying customized solutions to their unique needs. PRI is already working with industry representatives to determine current and future requirements.

Staff Engineer Contact Details - NDT Task Group

Name	Position	Location	e-mail Contact	Telephone
Mark Aubele	Senior Staff Engineer (Lead)	Warrendale, PA, USA	maubele@sae.org	+1 (724) 772-1616 ext 8654
Louise Belak	Committee Service Representative	Warrendale, PA, USA	belak@sae.org	+1 (724) 772-1616 ext 8644
Jim Bennett	Senior Staff Engineer	Warrendale, PA, USA	bennet@sae.org	+1 (724) 772-1616 ext 8651
Phil Ford	Senior Staff Engineer	Wales, UK	phil.ford@pri-europe.org.uk	+44 (0) 870 350 5011
Mike Gutridge	Senior Staff Engineer	Granville, OH, USA	mikeg@sae.org	+1 (740) 587-9841
Kellie O'Connor	Committee Service Representative	Warrendale, PA, USA	koconnor@sae.org	+1 (724) 772-1616 ext 8676
Mercedes Rodriguez	Committee Service Representative	London, UK	Mercedes.Rodriguez@pri-europe.org.uk	+44 (0) 870 350 5011 ext 1248