NADCAP NEWSLETTER

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IN BRIEF...

Nadcap is an approach to conformity assessment that brings together technical experts from Industry to manage the program by establishing requirements for accreditation, accrediting Suppliers and defining operational program requirements. This results in a standardized approach to quality assurance and a reduction in redundant auditing throughout the aerospace industry.

Nadcap is administered by the Performance Review Institute (PRI), a not-for-profit organization headquartered in the USA with satellite offices in Europe and Asia.

www.p-r-i.org/Nadcap/
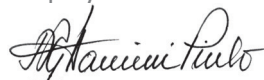
WELCOME TO THE SEVENTH ISSUE

This is the seventh issue of this Nadcap newsletter. PRI has been publishing and sharing this content for over a year and a half now. I would like to thank everyone who has given us feedback to help improve this newsletter, and for the positive comments my Staff and I have received on the content to date.

The intent of the newsletter continues to be to develop content for companies that are not normally able to send a representative to Nadcap meetings, to share technical information/knowledge that will help them better prepare for a Nadcap audit and understand how to utilize Nadcap effectively to improve their performance.

Each newsletter includes articles designed for the whole Nadcap Supplier community. In this issue, there is an article clarifying how to use the Metrics on eAuditnet, and one explaining how the Merit Program works. Also highlighted are the New Job Tracker and the recent Audit Checklist and Procedures revisions and changes, as well as a letter from the New Nadcap Management Council chairperson, Richard Blyth.

In addition to general Nadcap articles, each newsletter will have a particular technical focus. In this issue, there is detailed information regarding Nadcap new commodities, Aero Structure Assembly (ASA), Metallic Material Manufacture (MMM) and Measurement and Inspection (M&I). We know that many people are not able to attend Nadcap meetings and benefit from free training and other information shared there.

I hope you continue to find the content valuable.

Joseph G. Pinto
Executive Vice President & Chief Operating Officer
Performance Review Institute

A LETTER FROM THE NEW NMC CHAIR
Richard Blyth of Rolls-Royce Plc

In March 2017, the Nadcap Management Council (NMC) appointed its new Chair and Vice-Chair.

- Richard Blyth is the new NMC Chairperson. He is employed by Rolls-Royce Plc as Engineering Manager, responsible for Special Processes, Forgings, Castings and Raw Material production in the Supply Chain

A LETTER FROM THE NEW NMC CHAIR

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- Frank McManus is the new NMC Vice-Chairperson. Frank is a Senior Manager, Supplier Quality Engineering for Lockheed Martin Corporation

Following his debut as Chair in March, Richard wishes to provide a short introduction, highlights from the February 2017 New Orleans and June 2017 Berlin Nadcap Meetings and plans as the new NMC Chair:

Working for Rolls-Royce for the past 20 years, I first heard about Nadcap whilst running a manufacturing laboratory in a Rolls-Royce facility, being responsible for Heat Treatment, Chemical Processing, Welding, Non-Conventional Machining and Coatings. I became involved with Nadcap back in 2003, and it is Rolls-Royce's Supply Chain policy which gave me the opportunity to become a highly active member of Nadcap.

Rolls-Royce, like many other Suppliers and Subscribers in the aerospace industry, has a requirement to partake in the Task Groups we mandate on our Supply Chain. With a willingness to better understand, influence and develop a system that is vital to the control and improvement of the aerospace Supply Chain, it was key that I was part of the NMC. Having spent more time and being more active within the NMC, leading a few activities and a sub-committee, I felt I could benefit the program in the NMC Chair position.

Rolls-Royce is absolutely committed to Nadcap and its continuous use and improvement of the aerospace Supply Chain. This has been demonstrated over the last few years in the number of Chair positions we hold and the number of new Task Groups we have influenced. We currently mandate the following special processes:

- Chemical Processing
- Coatings
- Composites
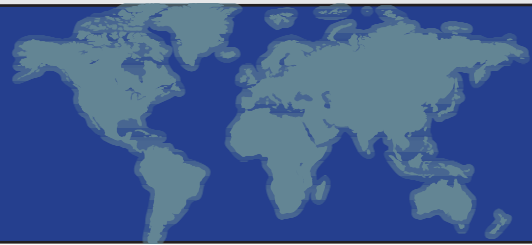- Electronics
- Heat Treatment
- Material Testing Laboratories
- Nonconventional Machining
- Non-Destructive Testing
- Surface Enhancement
- Welding

In addition, Rolls-Royce is currently working to develop and mandate the following special processes: Metallic Materials Manufacturing, Forging and Casting.

The Rolls-Royce Plc mandate is driven down through the whole of our supply chain for OEM manufacture and is seen as a key driver for achieving Rolls-Royce approval. Rolls-Royce Plc has seen an increase in quality within our internal and external supply chains. Furthermore, there are numerous instances of our Suppliers seeing the benefit of having a Nadcap audit.

As the NMC Chairperson, I have set myself several main areas to focus on for Nadcap's development over the next few years:

- Direction and coming challenges: What do Subscribers need and want from Nadcap? For example, how to be at the forefront of emerging technologies and have the foresight of where the industry is going. This includes a focus on emerging markets, such as Russia, India, China and Japan

- Competencies and people: How does Nadcap develop their technical competencies, ensuring they have the right capable personnel, and ability to retain talent. Another important aspect is 'succession planning', which is a growing concern

- Improvements: How to continually improve the effectiveness and efficiency of the audit process. We also want to ensure using NMC metrics (detailed later in this newsletter) show the health of the program as well as drive improvement

THE NEW JOB TRACKER

- The Supplier Support Committee:
  - Ensure they are fully engaged in improving the program and the NMC is fully engaged with them
  - Support questionnaires aiming at improving OEM communication to the Supplier base
  - Increase engagement from both Subscribers and Suppliers
  - Utilize Nadcap Technical Symposia to help the Supplier base gain knowledge about the Nadcap process and audits

For these improvements to take place, the support and participation of Suppliers is crucial. The Nadcap meetings are an excellent opportunity to have your voices heard, whether contributing to audit checklist development and operational procedures, sharing your experiences, or exercising your right to have a vote on Task Group and/or NMC decisions. Ensuring that aerospace industry stakeholders from all parts of the globe are fairly represented and having their voices heard can only happen if there is an active and equal contribution from everyone.

If you have any questions, please contact Scott Klavon at PRI on +1 724 772 7111 or by email to sklavon@p-r-i.org

Thank you for your continued support and I look forward to seeing you at a Nadcap meeting soon.

Sincerely,

Richard Blyth

Nadcap Management Council Chairperson

Back in March 2015, the Nadcap community formed the Audit Effectiveness Sub-Team, under the Nadcap Management Council (NMC) Oversight Committee. Mark Rechtsteiner (GE Aviation), the Chair of the Sub-Team and his Vice Chair, Richard Blyth (Rolls-Royce Plc), make sure the Sub-Team is focusing on two main areas:

1. Ensuring adequate Auditor validation of Nadcap and customer requirements

2. Preventing Auditees from manipulating the audit process

The Sub-Team's scope spans initial Auditor contact with the Auditee, to when the Auditor submits the audit report into eAuditNet, and also includes Auditor training, Auditor consistency, and gaps in the audit checklist that may affect Auditor consistency. In order to be as effective and efficient as possible, the Sub-Team decided to calculate a 'priority number' for each recommendation according to several criteria. These included the level of effort, impact, feasibility, value added, and others.

One of the highest ranked recommendations was a job tracker. Job trackers were first introduced several years ago, starting with Chemical Processing, and followed by Coatings and Nondestructive Testing. Implemented in mid-2016 in eAuditNet for all Task Groups, job trackers can be found and downloaded from the Audit Details page in eAuditNet. Job trackers provide a summary of jobs audited over multiple audits. Job trackers contain information for each job about:

- Process: the process which was audited
- Customer: the company for which the work was done
- Subscriber: the Subscriber/end user for which the work was done

Continued on next page

THE NEW JOB TRACKER

Continued from previous page

- Part number: the part number of the hardware which was audited

- Specification: the specification to which the work was performed

- Operator: the person/people who performed the operation(s)

- Equipment ID: the identification of the equipment used during the job

- In-process/historical job: if the job was witnessing an in-process job or a review of paperwork for a past job (when allowed by the Task Group)

In addition to the information captured in every job tracker, Task Groups are given the opportunity to track two additional items, such as material and work order number, in order to tailor the job tracker and make it as relevant as possible.

The main purpose of job trackers is to ensure that jobs are rotated among different processes, customers, Subscribers, specifications, etc. The job tracker also allows Task Groups to identify trends or patterns which could indicate an Auditee is manipulating the Nadcap audit process by always steering to the easiest jobs or the best operators. The job tracker provides an opportunity to look at a larger cross section of the Auditee's scope of accreditation, thereby providing a more valuable audit to the Auditee. It is understood that there are times when an Auditee will have only one customer or one operator, but where this is not the case, the expectation is to cover the as broad a scope as possible over multiple audits.

Each Nadcap Task Group defines their own priorities for looking at different jobs, such as whether it is more important to have a different process or a different Subscriber. The Auditor is expected to be the one to choose the actual job, using the job tracker to better select the job to be audited. Ultimately, it is the Auditee, Staff Engineer and assigned Auditor's responsibility to work together to identify any potential issues and address them.

Finally, Auditees should also have certain expectations regarding their Nadcap audits:

- They should expect the assigned Auditor to have reviewed the job tracker prior to the audit being performed, and that he or she will use it in selecting jobs to be audited

- They should expect that if an operator, a customer, or any item within the job tracker has not been audited for a while, there is a higher likelihood of them being audited

- They should have multiple jobs available from which the Auditor can select. Hence, there is no need to be 'prepping' jobs for the job audit

Recently, PRI Staff added a new section in published Nadcap checklists to record items which may not have been previously collected within the job tracker, such as operator and customer names. In order to reflect the industry's common goal of safety and quality improvement, job trackers will continue to evolve and improve.

If you have any questions about job trackers, please refer to the Auditor Advisory '*16-003 eAuditNet Job Tracker*' which can be found in eAuditNet, under Resources/Public Documents/Auditor Documents/Auditor Advisories/2016 Auditor Advisories or contact Jim Lewis.

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NADCAP NEW COMMODITIES

The Nadcap community is always working towards improving the quality and efficiency of the program, ultimately helping the industry move forward to achieve higher quality standards while reducing audit-related costs and logistics. The Nadcap community, including Subscribers, Suppliers, and Government bodies, came across gaps in the general aerospace supply chain management and turned it into an opportunity to address those concerns for quality and create new Task Groups. All parties worked together to create the three new Task Groups discussed below:

- ASA: Aero Structure Assembly
- MMM: Metallic Material Manufacture
- M&I: Measurement and Inspection

Much of the technical discussions and decision-making take place at the Nadcap meetings that are held three times per year. But the Task Groups recognize that not all industry stakeholders are able to participate and benefit from the opportunities that the meetings represent, such as learning, debating, and networking. Consequently, this article is intended to assist to some degree, by providing insights and sharing lessons learned regarding the Nadcap ASA, MMM, and M&I audit experiences.

The Aero Structure Assembly (ASA) Task Group

The Aero Structure Assembly Task Group is one of the newest Nadcap Task Groups. It was established in June 2016 and is currently led by acting Chairperson Craig Bowden of BAE Systems (MAI). Within the Task Group, there are over 12 industry representatives who actively participate in the technical discussions and decision-making.

The initiative to create the ASA Task Group came after the Nadcap Sealant Task Group performed a pilot audit of its new AC7129 Sealing of Aerospace Assemblies and Components Audit Checklist, back in January 2015. During the audit, it was noted that the Auditor was also witnessing the assembly operation, which was typically contained within the same instructions as the sealant application. Feedback from the Nadcap Management Council (NMC) suggested that there may be interest in accreditation for the assembly process.

To further gauge the level of interest in assemblies/sub-assemblies, a survey was sent to Nadcap Subscribers, with the results showing a need and commitment to continue to pursue this new area. A working group of NMC members, including individuals from Airbus, BAE Systems and Northrop Grumman, was formed to evaluate the Aerospace Assembly Task Group. Additional work showed that there were companies willing to participate on the Task Group and to mandate accreditation once the audit criteria were complete.

As the group continued to work, it determined that "Aerospace Assembly" was a broad topic; as a result, the group's name was changed to the Aero Structure Assembly (ASA) Task Group.

After numerous conference calls and WebEx meetings, the Aero Structure Assembly Task Group finally met face to face at the October 2016 Nadcap meeting held in Pittsburgh, PA, USA. At that meeting, the scope of the Task Group was further defined as including the processes of:

- Hole preparation
- Fastener installation
- Bushing and bearing installation
- Shimming and electrical bonding

In addition, the following processes were excluded:

- System installation
- Pumps
- Actuators

NADCAP NEW COMMODITIES

Continued from previous page

- Cockpit systems
- Wiring harnesses,
- Jigs/fixtures
- Maintenance Repair and Overhaul

They have also agreed upon a document structure that will include a general checklist and three slash sheets, one each for fastening, bushing and bearing Installation, and electrical bonding. The ASA Task Group also agreed upon an audit structure that will include a General checklist and three slash sheets:

- AC7XXX with General questions including Hole Preparation and Shimming
- AC7XXX/1 for Fastening
- AC7XXX/2 for Bushing and Bearing Installation
- AC7XXX/3 to address Electrical Bonding

With currently no single process and/or auditing approach across the aerospace industry to manage Aero Structure Assembly Suppliers, the team's goal is to develop a single robust approach to auditing and approving Suppliers that will ensure more consistency across the aerospace industry. The purpose of the Nadcap ASA accreditation is to assess a Supplier's ability to consistently produce an Aero Structures Assembly that conforms to the customer's procurement requirements. The ASA Task Groups short term goals are as follows:

- Submit the ASA business plan for approval at the June 2017 Nadcap Meeting
- Initial audit criteria (general and one slash sheet) developed and balloted by third quarter 2017
- Engage Auditors
- Conduct a pilot audit prior to finalization of the checklists in fourth quarter 2017
- Task Group ready to conduct audits by second quarter 2018

The Task Group is continuing to meet at all Nadcap Meetings and also holding monthly conference calls. Interested Subscribers and Suppliers are welcome to attend. For additional information about the ASA Program please contact Keith Purnell. There is also an upcoming need for ASA Auditors. If you have Aero Structure Assembly experience and are interested in becoming a Nadcap Auditor, please contact Jennifer Eckels at jeckels@p-r-i.org.

For more information about the ASA Program and Task Group activities, please do not hesitate to contact Keith Purnell.

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The Metallic Material Manufacture (MMM) Task Group

The Nadcap Metallic Material Manufacture Task Group (MMM) was established in 2014 and is currently led by Chairperson Elaine Boswell from Rolls-Royce, supported by Vice Chairperson Brian Streich from Honeywell. Within the Task Group, there are over 30 industry representatives. They participate in technical discussions and decision-making three times per year at Nadcap meetings.

The MMM Task Group covers Forgings, Castings and Raw Material Manufacture, however, at the present time, Nadcap audits can only be conducted for Forging accreditation whilst Casting and Raw Material Checklists are still being developed.

Forging

Forging audits are performed to AC7140 and, being a new commodity, few audits have been performed at the time of writing. The MMM Task Group have created a Forging Audit Handbook for AC7140 to aid the Auditors in performing consistent audits and also aid the Suppliers in preparing for the audit. The Forging Audit Handbook can be found in eAuditNet/Resources/Public Documents/Metallic Material Manufacture.

Documents

- Expand All
- Public Documents
  - Auditor Documents
  - General Documents
  - eAuditNet
  - Aero Structure Assembly
  - Aerospace Quality System
  - Chemical Processing
  - Coatings
  - Composites
  - Conventional Machining as a Special Process
  - Elastomer Seals
  - Electronics
  - Fluid Distribution Systems
  - Heat Treating
  - Materials Testing Laboratories
  - Measurement & Inspection
  - Metallic Materials Manufacturing
    - MMM RAIL 01-Mar-2017
    - Handbooks & Guides
      - AC7140 Handbook 16-Aug-2016 - DRAFT

The Forging Checklist (AC7140) covers the following types of forging techniques: - Hammer, Mechanical Press, Screw Press, Hydraulic Press, Isothermal Press, Ring Rolling, and Radial Forge. The Forging audit will cover the forging process from the Purchase Order to Release of the Forgings but it does not cover the Special Processes that are already covered by other Nadcap commodities such as Nondestructive Testing, Chemical Processing, or Material Testing.

During the audit, the Auditor will select a number of forging part numbers to 'best' cover the types of forging equipment and Subscriber customers. The job selection covers a long job audit which reviews the forged part from purchase order to release certification. There are other jobs audits which audit the pre-forge operations including material cutting and preparation, the forging operations, including pre-heating before actual forging, and post forging operations. The majority of the job audits are performed on the forging operation itself.

Castings

The MMM Task Group started development of a Casting checklist at the October 2016 Nadcap meeting in Pittsburgh. For Castings, there will most likely be two checklists, one covering Investment Castings and the other covering Sand Castings. There may be other checklists in the future covering different casting techniques. It is hoped there will be a Castings checklist by 2018.

The checklists will cover the full process of casting from Purchase Order to casting release, and, like the Forging audits, Castings audits will not include Special Processes that are already covered by another commodity such as Nondestructive Testing, Chemical Processing or Material Testing.

NADCAP NEW COMMODITIES

The MMM Task Group is looking for support from Suppliers that have knowledge of the Investment Casting and/or Sand Casting process to help write the checklists for these. Details of the next meeting of the MMM Task Group and the agenda is found on the PRI web site at p-r-i.org or you can contact Jerry Aston for further information.

Jerry Aston
Program Manager HT

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The Measurement and Inspection (M&I) Task Group

The Nadcap Measurement & Inspection Task Group was established in 2013 and is currently led by Chairperson Al Berger of GE Aviation, supported by Vice Chairperson Norman Gross from The Boeing Company. Within the Task Group, there are over 30 industry representatives. They participate in technical discussions and decision-making three times per year at Nadcap meetings. The M&I Task Group covers Coordinate Measurement Machines, (CMM), Laser Trackers, Articulating Arms, and Airflow Benches.

The current Nadcap mandate for Measurement and Inspection was issued in 2015 from The Boeing Company and is still the primary mandate for Coordinate Measurement Systems (CMS), although several other Subscribers are also slowly moving forward with mandates. Coordinate Measurement Systems currently include audit checklists for Coordinate Measurement

Machines (AC7130/1), Laser Trackers (AC7130/2), and Articulated Arms (AC7130/3). In 2016, the Boeing CMS, Digital Product Definition (DPD) mandate led to over 60 Supplier audits being completed for CMM, Laser Trackers and the Articulated Arm processes.

The Boeing Company works with 4 different Supplier Groups regarding the Nadcap Accreditation process: *'the Boeing Group 1, 2, 3 and 4 Suppliers'*. Suppliers belonging to the Group 1 had a deadline to have their Nadcap audit completed by the 1st of January 2017, and members of Group 2 have a deadline to be audited by the 1st of January 2018. However, there are still a large number of Boeing approved Suppliers from Group 1 that have not yet scheduled an audit.

As a result, the M&I Task Group expects a major influx of audits from July 2017 through December 2017 that will include re-accreditation audits (for audits done in 2016) from the *'Boeing Group 1 Suppliers'*, and also initial audits from that same group. Furthermore, Suppliers from the 'Boeing Group 2 Suppliers' may have difficulty scheduling M&I audits for the same period as re-accreditation audits for those Group 1 Suppliers will come due in the same time-frame the following year. It is therefore recommended that the Group 2 Supplier's schedule audits early to ensure Auditor availability and accreditation by the date required.

Rolls-Royce is another highly active Subscriber within the M&I Task Group. Anticipating a 3D Scanner mandate in late 2017, Rolls Royce has been instrumental in the creation and release of the 3D Structured Light Scanning checklist (AC7130/4) which should be active sometime after September 2017. This process is for hand-held and fixed position scanners that can capture far more measurement data points than with conventional measurement processes, and much quicker. The M&I Task Group can foresee these processes as the wave of the future, and the group will be defining the specific equipment that this checklist will apply to when mandated.

Other Nadcap Measurement & Inspection Subscribers

also shared upcoming requirements and initiatives as below:

• SAFRAN have required several Suppliers to be Nadcap M&I accredited, beginning in 2017

• Airbus required that many of their outside calibration services be CMS accredited in 2017

• Rolls-Royce has indicated an upcoming Supplier mandate for the Airflow process in the very near future

• The GE Aviation mandate for the Airflow process has led to over 25 re-accreditation audits scheduled for 2017

Additionally, PRI saw an opportunity to help improve and develop the M&I Community activities and therefore has released the General Inspection Checklist (AC7114/6) for calipers, micrometers, run-out gages, plug gages, no-go gages, etc. Although there is not a current mandate for that checklist, if a Supplier would want to enhance their internal program, the PRI Auditors have been qualified and PRI is able to audit a Supplier to that checklist.

From the second half of 2017 onwards, PRI and the M&I Task Group have several goals which are defined below:

• Continue to train independent contract Auditors in anticipation of the large influx of audits later this year

• Continue working on increasing the number of mandates, which will benefit both the Suppliers and Subscribers. This is especially important for Suppliers who perform M&I for multiple Subscribers as it would result in a reduction of redundant audits

• Continue working on the Remote Services Provider. Currently, only Supplier work that is performed on-site, in other words at the Supplier address, is accredited by Nadcap. However, the Laser Tracker process is largely mobile and much of the actual work performed by a Supplier is conducted at a remote facility. A team of Nadcap Management

Council members, Task Group Chairs, and PRI Staff has been considering how that remote field work could be accredited to facilitate this need. Even though the Supplier operates out of a "main" facility the actual work and compliance job reviews would be performed at a location not under the ownership or control of the Supplier's Quality System. The team has made progress moving forward with the concept and there will be much more to come in the near future

The M&I Task Group is looking for support from both Suppliers and Subscribers to keep the program moving forward and help improve the quality level in the aerospace industry. There is also an urgent need for M&I Auditors. If you have Measurement and Inspection experience and are interested in becoming a Nadcap Auditor, please contact Jennifer Eckels at jeckels@p-r-i.org.

For more information about the M&I Programs and Task Group activities, please do not hesitate to contact Dave Marcyjanik – PRI Staff Engineer.

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OP 1111: UNDERSTANDING THE MERIT PROGRAM

Becoming a Nadcap accredited Supplier can be a long and difficult process that involves significant investment in both time and resources. Because of the resource allocation and cost factors, 18 or 24-month merit is highly sought after by Nadcap Suppliers and Operating Procedure (OP 1111) details the requirements for awarding merit to Nadcap Suppliers. There are two merit lengths associated with the Nadcap Program, 18 and 24 months.

18-month merit can be awarded after a Supplier's second reaccreditation audit. The initial audit and first reaccreditation audits have accreditation lengths of 12 months.

To be eligible for 18-month merit, the audit must meet the following criteria:

- Be the second reaccreditation audit (the 3rd audit without a lapse in accreditation)

- No non-sustaining corrective actions identified on the current or previous accreditation audit, or on any Add Scope audit between the previous and current accreditation audit

- No Verification of Corrective Action (VCA) audits because of current or previous accreditation audit

- No escapes identified by the Auditor or Type P or C Supplier advisories (see OP 1109) issued since the start of the previous accreditation audit

- No more than 14 cumulative late days on current audit

- No more than 50% of major and 60% of total non-conformances (NCRs) allowed for mode B reaccreditation audit failure criteria as identified in OP 1110 Annex A. Where the percentage of major and total NCRs is not a whole number, the value shall be rounded up.

- Any other justifiable reason agreed by the Task Group

To be eligible for 24-month merit, the audit must meet the following criteria:

- All 18-month merit criteria described previously

- Previous two consecutive accreditations in the commodity, including current accreditation, must have been 18-months.

- No major findings

- No more than 7 cumulative late days

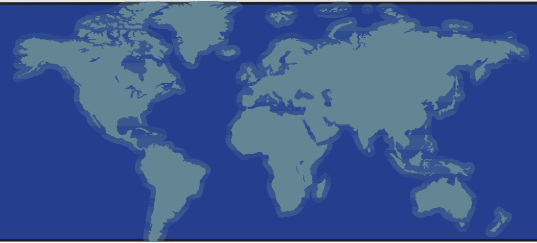- Any other justifiable reason agreed by the Task Group

Satellite and Main facilities shall be granted merit based on the overall performance of all the facilities and shall be granted the shorter accreditation length achieved by any of the facilities.

For more information, please refer to the '*OP1111 - Merit Program*' which can be found in eAuditNet under *Resources/Public Documents/Nadcap Operating Procedures/Operating Procedures* or contact your Staff Engineer or Michael Graham, Senior Program Manager.
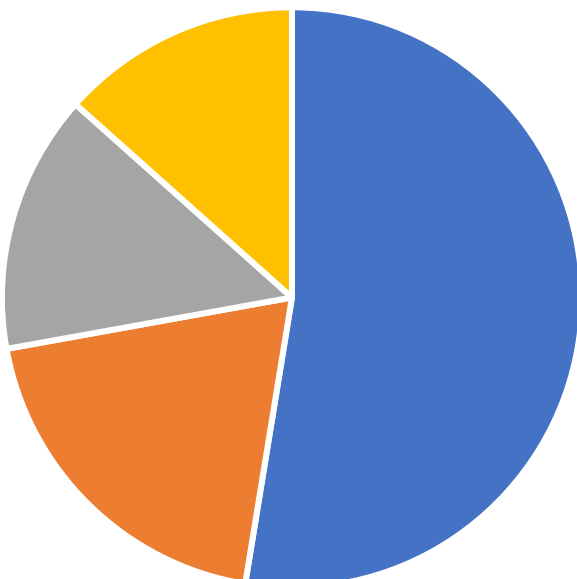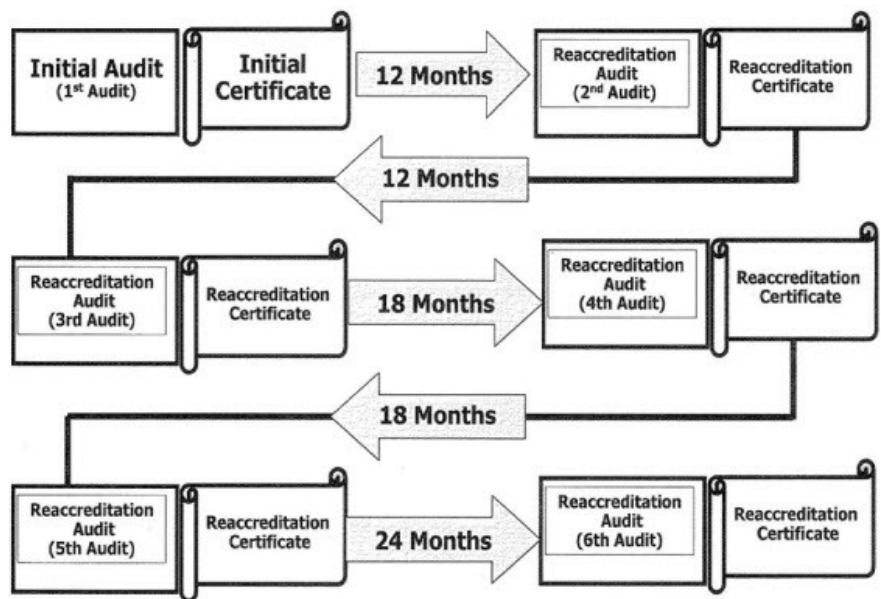
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Graphic: *Nadcap Merit Accreditation Timeline (Ideal Case)*

Graphic: *Top reasons for Merit not being awarded. Of 1,766 Suppliers, the following are the top reasons for Merit not being achieved.*

- 51% Too many major findings
- 19% Special Process Escapes
- 14% Non-Sustaining Corrective Actions
- 13% Too Many Late Days

NADCAP NEWSLETTER
Nadcap: over 25 Years of Excellence

HOW TO USE THE METRICS ON EAUDITNET

eAuditNet is a web-based, intuitive workflow software system created by the Performance Review Institute in 2002. It was first developed to facilitate and coordinate how Nadcap audits are set up and conducted, moving from a paper-based process to a digital one. eAuditNet is used by all Nadcap constituents active in the program, from Nadcap Subscribers to Suppliers and Auditors. Regulatory authorities and PRI Staff also use eAuditNet.

Offering 24/7 secure global electronic access to all Nadcap stakeholders, eAuditNet improves productivity for all users throughout the workflow. One of the tools which helps PRI Staff better coordinate and improve Nadcap is through 'Metrics', which uphold consistency in oversight and quality control throughout the program.

Nadcap program metrics are available to all Nadcap participants who have an account created in eAuditNet, as shown below. Information displayed in the metrics section varies according to whether you have a Supplier or Subscriber role in the system. Subscriber accounts have an extra section called 'Subscriber Supplier Metrics', where they can track all relevant data about their Nadcap Suppliers.

Graphic: *Metrics are available in eAuditNet under Subscriber Applications or Supplier Applications / Metrics*

Initiated by the Nadcap Management Council (NMC), Nadcap metrics' primary purpose is to show the health of the program against the Nadcap goals set up by the NMC. These goals are available to anyone who has an eAuditNet account, in the metrics section. PRI strongly believes that they should be publicly available to show that PRI, as the administrator of the Nadcap program, is held accountable to these goals and is available to review or discuss them as needed.

Nadcap metrics display data and information following a 24-month rolling process. Metrics are updated on the 1st of each month with support from the dedicated software development team who exclusively supports this system and its continual enhancements. Additionally, the NMC and PRI Staff discuss and evaluate these metrics at each Nadcap meeting, 3 times a year, to ensure each metric continues to make sense to the Nadcap program and to determine if any changes and/or improvements are needed.

The latest noteworthy change made to the Nadcap metrics was implemented in 2016. The NMC and eAuditNet team decided to add the Subscriber Audit Ballot feature. This is a Subscriber-specific improvement that shows which subscribing Task Group members voted on which audits. This highlights the level of involvement from the Task Group members. Based on the program needs, the NMC and eAuditNet team are currently working on the 2017 changes and improvements; additional metrics and dashboards are likely to be added to the current metrics.

An example of the NMC metrics summary is shown on the next page to illustrate the value of this eAuditNet feature. The following summarizes the three most important and relevant Nadcap metrics reviewed and discussed not only at each Nadcap meeting but also at each PRI Board of Directors meeting.

1. Audit Cycle Time is the total length/time between the end date of an audit and the certificate being issued. It includes various participants in the accreditation process, including Auditors, PRI Staff

Performance Metrics

MOS Metric	Goal / Action Target Level	Status - Month of (Jan - 2017)	Status - Month of (Feb - 2017)	Status - Month of (Mar - 2017)
#16 Cycle Time	<= 53 Days (avg)	45 Days	42 Days	37 Days
	<= 10 audits open >=90 Days (last day of month)	4 Audits Open	2 Audits Open	2 Audits Open
#18 On-Time Certifications	>= 98% On-Time (3 month Rolling Average)	100%	100%	100%
#8 Supplier Merit *	>= 80%	86%	86%	86%

Legend		
>= 100% of Goal	>= 90% - < 100% of Goal	< 90% of Goal

Note:
* MTL not included in Supplier Merit

Graphic: NMC Metrics reviewed and discussed by the PRI Board of Directors

Engineers, Task Group members, Subscribers, and PRI Staff. This metric evaluates how effective PRI is coordinating the issue of certificate Supplier's accreditation.

2. On-time Certifications represent the proportion of Nadcap special process reaccreditations performed on time. In other words, this metric evaluates PRI's ability to make sure that Nadcap-accredited Suppliers and Subscribers keep their accreditation(s) and that there is no gap that could seriously impact one's business.

3. Supplier Merit focuses on Nadcap's aptitude to maintain a high number of Suppliers within the Merit scheme. The program aims to maintain the highest level of quality within the industry while keeping the audit costs as low as possible for Suppliers.

The Nadcap metrics in eAuditNet differ depending on your role in the Nadcap program. Although the information available varies according to your company profile, there are a number of elements which are worth being highlighted.

From a Subscriber's point of view, the Nadcap metrics allow you to verify the current accreditation status of Suppliers that are on your 'Subscriber's Supplier list', which helps Subscribers oversee their supply chain. The 'Supplier List Details and Reports' enables Subscribers to monitor program effectiveness and recommends where to use their resources. Subscribers are also able to view Supplier Process Audit Status, Last Certificate Expiration, Merit Status and Delinquent Reponses. As a security measure, Subscribers can only see their own Suppliers and not those of their competitors.

Subscribers respond to ballots for audits, and Supplier Merit Length, in the Task Group area. Once logged in eAuditNet and in the dedicated Commodity area (NonDestructive Testing or Heat Treating for example), Subscribers can go into the 'Task Group Review' section

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HOW TO USE THE METRICS ON EAUDITNET

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to get a list of audits currently in Task Group Review and click on the 'Ballot' link to access the ballot itself. Subscribers have the following ballot options:

• Accept, which will require no corrective action or follow-up by either the Nadcap Task Group or the Audit Report Reviewer prior to issuance of accreditation

• Accept with comments, meaning that it will require a review and approval of the Auditee's corrective action by the Audit Report Reviewer and, if required, the applicable Task Group Representative(s) prior to issuance of accreditation

• Disapprove will require additional corrective action and may require a Verification of Corrective Action (VCA) audit to assure compliance. If a VCA is needed, it will imply a review and approval of the Auditee's corrective action by the Nadcap Task Group prior to issuance of accreditation

• Waive is when Member has responded to the ballot and has elected not to exercise their vote

The results of this balloting are found in the Metrics area under Audit Ballot Metrics. The Ballot Metrics help Subscribers to gain an understanding of how their Task Group members are supporting audit ballots. The data shows how many ballots were cast per commodity / per Task Group voter relative to the total audits certified in the month for Suppliers included and not included on their Supplier list. It is important to note that only the last 12 months of Nadcap audit ballot is displayed and Subscriber Accreditation audits are not included.

The metrics available in eAuditNet reveal the health of the Nadcap program and its achievements to date against the NMC goals. Both Subscribers and Suppliers benefit by reviewing this data periodically. If you have any questions or suggestions regarding eAuditNet, please contact eAuditNetSupport@p-r-i.org

NADCAP EVENTS AT A GLANCE

The Nadcap program's primary purpose is to improve quality, while reducing costs, for quality assurance throughout the aerospace and defense industries. All stakeholders ensure that the program keeps moving forward and that the Supplier base receives relevant information about program benefits and information on how to achieve Nadcap accreditation. Hence, Nadcap holds two different types of events towards these goals. Both are free of charge to attend.

1. **Nadcap Meetings** are held three times a year at various locations around the world. A lot happens during these meetings, including discussions about Nadcap strategy and development, Task Group requirements and audit criteria development, and Supplier-sponsored events. Around 1,000 representatives from leading aerospace OEMs and Suppliers attend each meeting.

Upcoming Nadcap Meetings:
   • 23-26 October 2017 – Pittsburgh, PA, U.S.A.
   • 19-22 February 2018 – Madrid, Spain
   • 18-21 June 2018 – London, U.K.

2. **Nadcap Symposia** are organized as an opportunity for companies that are not typically able to send a representative to Nadcap meetings to gain technical knowledge and information that will help them better prepare for a Nadcap audit. During the Symposia, engaging presentations and workshops are offered by leading Nadcap Management Council representatives and PRI Staff Engineers.

Upcoming Nadcap Symposia:
   • 2 August 2017 – Seattle, WA, U.S.A.
   • 19 September 2017 – Wichita, KS, U.S.A
   • 14 November 2017 – Manchester, U.K.
   • November 2017 – Bangalore, India

For more information, please contact Kellie O'Connor koconnor@p-r-i.org or Adrien Boespflug aboespflug@p-r-i.org

ADDITIVE MANUFACTURING (AM) CHECKLIST ISSUED

The Welding Task Group is pleased to announce the issue of AC7110/14, Nadcap Criteria for Laser and Electron Beam Metallic Powder Bed Additive Manufacturing.

Per direction from the Nadcap Management Council (NMC), Additive Manufacturing was assigned to the Welding Task Group, and a sub-team led by Dr Richard Freeman of TWI has developed a checklist to assess the power bed derivatives of this process based on common requirements within Subscriber specifications.

Audits of this process can now be scheduled using AC7110/14 in conjunction with the core Welding checklist, AC7110. The checklists are located in eAuditNet at Resources / Documents / Audit Checklists / Welding.

The Task Group has also published an audit handbook to provide guidance on question intent and the acceptable objective evidence that may be presented to demonstrate compliance. The audit handbooks are also available in eAuditNet at Resources / Documents / Public Documents / Welding / Handbooks and Guides.

If you have any questions with respect to the Additive Manufacturing checklist, please contact either Ian Simpson, Program Manager – Welding, or Gabe Kustra, Staff Engineer – Welding.

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THE CODE OF ETHICS AND ANTI-TRUST WITHIN NADCAP

As a participant in Nadcap, an industry-managed program, it is important that you understand and comply to Antitrust and the Nadcap Personal Code of Ethics and Conflict of Interest policies. These policies can be found on page 7 of the Nadcap Attendees Guide, which is distributed at all Nadcap meetings.

Participants are expected to conduct themselves in an ethical manner and an open environment. As an example, if a Supplier or Subscriber would like to discuss a vote on the outcome of an audit with a Subscriber member of a Task Group, the discussion should be done in an open forum and in the presence of a PRI Staff member so as not to create suspicion of improper behavior. One-on-one discussions, in general should not take place as they may be construed as unfairly influencing participants.

Should you have any questions regarding this communication, please contact any PRI Nadcap Staff member.

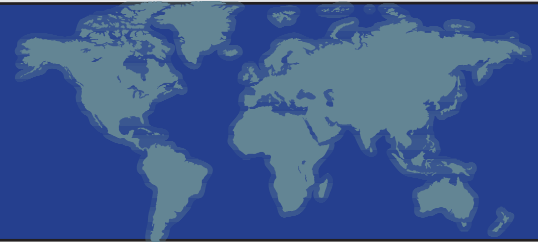To request a copy of the above-mentioned policies, email NadcapEthics@p-r-i.org.

AUDIT CHECKLIST AND PROCEDURE REVISIONS AND CHANGES

Having conveyed a satisfaction survey on the Nadcap newsletter's content at the beginning of the year, one of the readers' requests was to see an open communication about the latest important changes made to the Nadcap checklists and procedures.

The tables below summarize key changes to Nadcap Checklists and Procedures. Please review the entire document posted on eAuditNet or contact the designated PRI Staff responsible for the change/revision if you'd like more information or have any questions. You can find all the contacts on eAuditNet, under the section 'Contact Us'.

CHECKLISTS REVISIONS		
Commodity	**Task Group Lead**	**Significant change to the program**
AQS	Susan Frailey	Complete rewrite of AC7004 Rev E to match AS 9100 current revision (D or 2016)
CMSP	Andy Statham	AC7126 Rev C – Added self-audit requirements per OP 1105 and OP 1114
COMP /NMMM /NMMT	John Tibma	COMP AC7118 Rev E – Added self-audit requirements and a new scope, Kitting Service Provider
		NMMM AC7124 Rev B – Added self-audit requirements per OP 1105 and OP 1114
		NMMT AC7122–I Rev D – Added self-audit requirements per OP 1105 and OP 1114
CP	Nigel Cook	AC7108 Rev H – Processes previously covered by AC7108 have been broken out into slash sheets (AC7108/8 – AC7108/14)
		AC7108/4 Rev B – Now applies to both in-house laboratories and sub-contract laboratories AC7108 is not required for sub-contract laboratories
ETG	Susan Frailey	AC7120 Rev E – Has been broken out from just a core checklist to a core and slash sheets which are process specific.
		AC7119 Rev G – Retire 7119/3 and incorporate requirements into main doc. Added self-audit requirements per OP 1105 and OP 1114. Aligned with updated IPC standards.
		AC7121 Rev D – aligned with IPC/WHMA-A-620

CHECKLISTS REVISIONS		
Commodity	**Task Group Lead**	**Significant change to the program**
HT	Marcel Cuperman	AC7102 Rev I – Added self-audit requirements per OP 1105 and OP 1114
		AC7102/4 Rev D (Nitriding) – Revised questions for Gas Nitriding and Ion Nitriding
M&I	Dave Marcyjanik	AC7140 Rev A – Added self-audit requirements per OP 1105 and OP 1114
NDT	Phil Ford	Significant changes to AC7114/6 Rev D and AC7114/8 Rev C (digital radiography utilizing Digital Detector arrays or Photostimulable Luminescence) which will allow a Supplier to hold an accreditation without prior customer approval
NMSE	Mark Hunkele	NM AC7116/5 Rev A – Compliance Assessment Guidance and NA substantiations were added for all NAs, question 3.2.3 was added to verify pulse format, question 4.3.1.3 was added for the removal of anti-spatter material, removed section 7.2 and put questions into the baseline checklist, and added question 9.1.18 for frozen processes
		NM AC7116/6 Rev A – Compliance Assessment Guidance and NA substantiations were added for all NAs, added question 3.2.2 and 3.2.3 for coolant fluid system and power supply maintenance, moved requirements in section 7.2 for metallographic evaluation customer requirements to the baseline checklist, added question 9.1.19 for frozen processes, and added questions 9.3.2, 9.3.3, and 9.3.4 for maintenance of the machine, coolant/cutting system, and the power supply
		SE AC7117/1 Rev B – Added NA substantiations for all of the NAs, added supplemental questions for Bombardier, and added question 9.2.1 for frozen processes
		SE AC7117/3 Rev B – Addition of NA substantiations for all NAs, addition of Bombardier supplemental questions, addition of question 9.2.1 for frozen processes, and deletion of question for intermediate Almen readings (9.7.4.6)

AUDIT CHECKLIST REVISIONS AND CHANGES

Continued from previous page

CHECKLISTS REVISIONS		
Commodity	**Task Group Lead**	**Significant change to the program**
NMSE	Mark Hunkele	SE AC7117/4 Rev B – Added compliance assessment guidance for the remaining NAs, added question 7.1.7 on operator qualification, updated question 9.1.2.15 about export control status of the Auditor to be consistent with the other checklists, and added question 9.2.1 on frozen processes
		SE AC7117/5 Rev B – Added compliance assessment guidance for the remaining NAs, added questions 7.1.1, 7.1.2, 7.1.3, and 7.1.4 under Operator Qualification, updated question 9.1.2.15 about export control status of the Auditor to be consistent with the other checklists, and added question 9.2.1 on frozen processes
WLD	Ian Simpson	New checklist, AC7110/14 – To cover laser and electron beam powder bed metallic Additive Manufacturing
		AC7110/8 Rev G (Diffusion welding) – Now has supplement to specifically assess for Super Plastic Forming
		AC7110 Rev F – Added self-audit requirements per OP 1105 and OP 1114

PROCEDURES		
New Title	**Document Owner**	**Significant change to the program**
OP 1104 Audit Scheduling	Linda Novak	*6 September 2016* – Program Manager approval is now required to use the same Auditor for 3 consecutive audits
		6 September 2016 – The ITAR/EAR question must be answered on every audit type including Add Scope & VCAs
OP 1105 Conducting an Audit	Dave Marcyjanik	*22 May 2017* – Self-audits are required to be performed prior to your Nadcap Audit

PROCEDURES		
New Title	**Document Owner**	**Significant change to the program**
OP 1110 Audit Failure	Mike Graham	_30 September 2016_ – Revised the Risk Mitigation Process which impacts audits conducted after January 1, 2017
		16 March 2017 – Annual update to the Mode B (Number of NCR's) failure criteria
OP 1113 Appeals	Connie Hess	_13 January 2017_ – Corrected accreditation options in 2.0; Revised 4.1.1, 4.6.3 and 4.12.2 to clarify withdrawal process for all levels of appeals; Revised 4.6 through 4.11 and 4.12 through 4.18 to standardize the appeal process at all levels of appeal (Task Group, Ethics and Appeals and NMC)
OP 1114 Appendix MTL	Kevin Wetzel	_29 March 2017_ – Added to 4.12.3 Acceptable quality system for mechanical specimen machining facilities Added 4.2.2 succession plan Added 4.6.2.3 – self-audit Removed 4.9.3 concerning out dated Risk Mitigation process Revised to address ballot comments and references to core OP 1114
OP 1116 Appendix NDT	Phil Ford	_29 June 2016_ – Added paragraphs 4.2.8.2.3 to address etch Auditor training and paragraphs 4.4, 4.4.1, 4.4.2, 4.4.3, 4.4.4 & 4.4.5 to address the removal of restrictions and limitations on Auditors
OP 1116 Appendix WLD	Ian Simpson	_21 December 2016_ – Provision to allow Task Group to waive interviews when process restriction removals are being considered for Auditors
OP 1123 Supplier Support Committee	Connie Hess	_18 November 2016_ – Complete rewrite; defines roles and responsibilities of Supplier representatives of the SSC including Leadership Team, officers, sub-team leads and task group reps

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