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 NINTH ISSUE

This is the ninth issue of this Nadcap newsletter. PRI has been publishing and sharing this content since September 2015. 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 and 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 about the advantages of Nadcap accreditation from a Subscriber perspective, and one explaining the audit observation process, as described in OP 1118. Also highlighted is the revised Risk Mitigation process, following an article on the same subject in the November 2016 newsletter. Finally, there is an article focusing on the view about Nadcap from the Supplier Support Committe Leadership Team.

In addition to general Nadcap articles, each newsletter has a particular technical focus. In this issue, there is detailed information regarding Nadcap Coatings (CT). More than 140 Nadcap CT audits are conducted annually, yet 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

ADVANTAGES OF ACCREDITATION FROM A SUBSCRIBER PERSPECTIVE

The Nadcap Subscribers have been playing a pivotal role, driving the Nadcap program since its inception. Richard Blyth, Chair of the Nadcap Management Council and Engineering Manager for Rolls-Royce Plc, shares his perspective on the advantages of Nadcap accreditation from the Subscriber perspective.

Nadcap

ADVANTAGES OF ACCREDITATION FROM A SUBSCRIBER PERSPECTIVE

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Nadcap seen from a Subscriber's organization perspective

How has Nadcap impacted your organization and its internal quality systems?

After joining Nadcap in 1994, Rolls-Royce realized that from the initial audits performed by Nadcap in our internal facilities, it was clear that our controlling specifications were significantly different from the national and international specifications and industry best practice. These audits, and subsequent deviation permits showed us what changes we needed to make. Roll-Royce has continued to update its specifications on an ongoing basis or, when required, question the Nadcap requirements to ensure Quality remains a high priority.

There have been numerous benefits that the Nadcap audit process has given Rolls-Royce, the main one being increasing the profile of Special Process Quality within the organization. With the focus on training, control, cleanliness, operator competency and consistency that the Nadcap audits bring, Rolls-Royce has managed to greatly increase the investment in the Special Process facilities and hence, the control and quality of the processes.

How has Nadcap impacted your organization and its external quality systems?

Externally, Rolls-Royce has reduced the number of maintenance audits of Special Process Suppliers to zero. We are now reliant on Nadcap audits and results. Every two weeks, the global Rolls-Royce External Laboratory reviews all Nadcap audits and focuses on the high risk Rolls-Royce Suppliers. We fully utilize the non-conformances (NCRs) and communications between PRI and the Suppliers to determine the risk to our products. Therefore, the externally facing teams have significantly reduced costs and freed up time to focus on the Quality, Cost and Delivery aspects of the business.

The UK Airworthiness Authorities awareness of the Nadcap program has increased significantly over the last seven years. Discussion with the Civil Aviation Authority (CAA) about Nadcap and the effectiveness of the audits has continued to improve and increase. This has led to more confidence by the CAA in the Nadcap audit results and Rolls-Royce is able to use the Nadcap audits to show its supply chain is in control.

Nadcap and its Supplier network

How has the Nadcap program helped improve the homogeneity of Special Processes monitoring methods and moved toward globalization?

Working toward having industry consensus audit requirements that satisfy all participants of the Nadcap program, i.e. Subscribers, Suppliers and Government bodies, homogeneity is crucial to Nadcap. As the Nadcap audit process utilizes the same questionnaires and auditors are trained to the same processes and procedures, consistency is a key aspect of the program we continue to improve.

Consistent auditing using industry developed checklists is leading to a higher level of quality at a much lower cost for the Subscribers. Given the number of Supplier audits has reduced, in the case of Rolls-Royce to zero, this allows the technical teams to focus on improvement activities.

Has Nadcap made it easier for Subscribers to find competent Suppliers and track Suppliers' performance?

This level of quality is seen through the Aerospace 'Qualified Manufactures List' (QML), available under Resources on eAuditNet, which helps finding competent Suppliers with a solid quality base. The Rolls-Royce two weekly global review of failed Supplier audits and Supplier advisories makes understanding the competency and risks of our global supply chain much easier. We then use this information to develop an
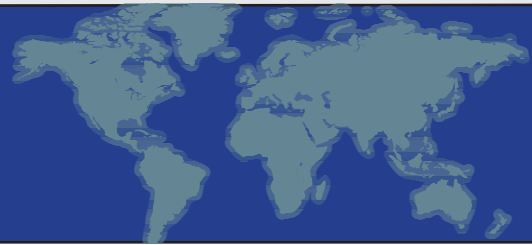
understanding of the global supply chain and how it aligns to Rolls-Royce's strategy.

With the global network of technical individuals and auditors that Nadcap has developed over the last 28 years, and the consistency in the Supplier audits, Rolls-Royce has a high level of confidence in the Nadcap approved supply chain.

What is Rolls-Royce's biggest learning point related to Nadcap and how does Rolls-Royce see the Nadcap program within its approach to Quality for the next few years?

Our biggest learning related to Nadcap is about our specifications as these are not perfect and we can utilize the Nadcap program in all of its guises to improve our processes and procedures. The Nadcap program is absolutely key to our Quality and Technical processes. The Nadcap conferences and discussions in the Task Groups continue to enable us to improve our specifications and systems.

The objective for 2018 is to fully align Rolls-Royce specifications with global requirements through the Nadcap questionnaires as this should make the Rolls-Royce supply chain more efficient and effective at lower cost. This will help make the organization more agile in the event of changes in standards in the industry or even internal changes. Additionally, as the Subscriber Accreditation process is independent and entirely objective, the organization gets an unbiased view of its processes and systems through Nadcap.

Standardization in the Aerospace Market

How does Nadcap help standardize the aerospace market through working towards checklists aligned with the industry's standards agreed by all participants?

Standardization and consistency are driven by the Nadcap process in the Rolls-Royce supply chain. Standard checklists derived from the industry

specifications drives everyone to be consistent. As a Subscriber, Rolls-Royce perceives its role as developing the effectiveness and efficiency of the Nadcap program for all groups involved, Suppliers, Subscribers, Nadcap staff and Auditors.

How is the Nadcap standardized approach included in your supply chain policy and practices?

The Rolls-Royce Nadcap requirements are embedded in both the internal Quality Management System and our externally facing supplier requirements in the Supplier Advanced Business Relationship document (SABRe). The requirements internally and externally are identical to ensure we have consistency of delivery of Special Processes. Internally, the number of NCRs raised during Nadcap audits has decreased year on year.

In the early days of the program, it was all about mandating the Task Group requirements and driving the Nadcap processes and procedures whereas now, it is more about developing and improving the program. The next big challenges for the program are to ensure Nadcap remains a global organization that the supply chain can trust and the information it holds is useful and useable. Nadcap needs to remain at the forefront of emerging technologies and ensure they have the skills and expertise to develop new checklists.

We, as Subscribers, need to allow Nadcap to develop Suppliers in countries new to the aerospace industry. More efficient and effective auditing is required and to do this, improvements in training and clear audit checklists are needed as this will lead to improved consistency. Whilst all these new initiatives are implemented, Nadcap needs to ensure they have the capacity to cope with the increased load and the succession planning of its staff.

In conclusion, Rolls-Royce is totally committed to the Nadcap program as

ACCREDITATION FROM A SUBSCRIBER PERSPECTIVE

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it can be seen by the number of representatives that we have on the Task Groups, representation on the Nadcap Management Council and the PRI Board of Directors.

We have also been heavily involved in the latest Task Groups that have been developed. The benefits that Nadcap achieves for both the Internal and External supply chain are extensive and therefore, Rolls-Royce will continue to be a significant part of the Nadcap program and will utilize all of the outputs to continually improve itself and its supply chain.

If you have any questions about Nadcap, please contact Scott Klavon:

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Richard Blyth

Nadcap Management Council Chairperson and Engineering Manager for Rolls-Royce Plc

NADCAP CT AUDIT INSIGHT

The Nadcap Coatings (CT) Task Group was established in 1995 and is currently led by Chairperson Udo Schuelke of Honeywell Aerospace, supported by Vice Chairperson, Joel Mohnacky of UTC Aerospace (Goodrich). The Coatings Task Group audits aerospace facilities performing coating processing. Within the Task Group, there are currently 32 industry representatives – 19 Nadcap Subscriber representatives from 11 companies and 13 Supplier representatives from 9 companies who actively participate in the technical discussions and decision making.

Much of this activity takes place at the Nadcap meetings that are held three times per year, but the Task Group recognizes not all industry stakeholders are able to participate and benefit from the opportunities the meetings offer, 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 CT audit experience.

What are Coatings in relation to Nadcap?

The Nadcap CT Task Group definition of coatings is a small subset of what would be considered a coating in real world applications. When looking at coatings based on the everyday definition of the term, most people would think about processes such as painting, plating, and anodizing. However, within Nadcap, these application techniques actually fall within the Chemical Processing (CP) Task Group. The CT Task Group focuses specifically on three types of coating technology used to apply a metal or ceramic coating on a metal substrate. These technologies consist of Thermal Spray, Vapor Deposition, and Diffusion Coating applications.

Thermal Spray involves the use of a high temperature heat source to melt a wire or powder as it is fed into that heat source. The melted particles are carried through the flame or beam to the substrate some distance away. Upon coming into contact with the surface of the

substrate, the coating material cools and solidifies on the surface. Within Thermal Spray, the CT Task Group currently accredits facilities to perform coatings using Oxy Fuel, HVOF/HVAF (High Velocity Oxy Fuel/High Velocity Air Fuel), Plasma, LPPS (Low Pressure Plasma Spray), Electric Arc, and Detonation Gun applications. These technologies differ based on the type of material (powder versus wire), melting method, and delivery technique.

Vapor Deposition is a process where parts are loaded into a coater with a coating material, ensuring there is sufficient spacing so the areas to be coated are not shielded in any way. The coating material is then heated until a gas vapor is formed, and the vapor fills the chamber. Upon coming into contact with the substrate surface, the vapor cools and deposits as a thin coating. This vapor deposition can either be accomplished through a physical heating of the coating material (Physical Vapor Deposition – PVD) or chemical reaction of the coating material (Chemical Vapor Deposition – CVD). PVD can be accomplished via Arc, Sputtering, or Electron Beam, which differ in terms of the method of heating and the coating material type.

Diffusion Coatings are a subset of coatings that can be accomplished via a variety of technologies. The distinguishing characteristic for Diffusion Coatings is that unlike Thermal Spray and Vapor Deposition, which form a coating with a distinct interface with the substrate that is only a mechanical bond between the two, diffusion coatings interact with the substrate and being to diffuse into the surface, creating an intermediate layer that is composed of both the coating and substrate materials.

Diffusion Coatings are processed by either placing the parts in or above a pack coating material in a traditional diffusion reactor. Diffusion can also be performed using CVD for aluminide coatings or after Slurry application. In all cases, the general concept is that the coating material applied to the surface and subsequent heating allows the material to diffuse into the surface creating a diffusion bond.

Coatings Audit Criteria

The CT audit criteria is comprised of the AC7109 series of checklists, which can be found on eAuditNet under Resources / Documents / Audit Criteria / Coatings (AC7109). AC7109 is the core checklist and is required for every Nadcap CT audit that is performed. This document covers general requirements that are relevant for all Auditees. The CT Task Group has developed eight additional checklists to cover the various special processes covered within a CT accreditation. These checklists are:

AC7109/1 – Nadcap Audit Criteria for Thermal Spray

AC7109/2 – Nadcap Audit Criteria for Vapor Deposited Coatings

AC7109/3 – Nadcap Audit Criteria for Diffusion Coating

AC7109/4 – Nadcap Audit Criteria for Stripping of Coated Material

AC7109/5 – Nadcap Audit Criteria for Coating Evaluation

AC7109/6 – Nadcap Audit Criteria for Plating of Coated Parts

AC7109/7 – Nadcap Audit Criteria for Heat Treating for Suppliers of Coatings

AC7109/8 – Nadcap Audit Criteria for Grinding of Coatings as a Special Process

To be eligible for a Nadcap CT audit and accreditation, the Auditee must perform one of the three coatings applications technologies (Thermal Spray, Vapor Deposition, and/or Diffusion Coatings). Thus AC7109/1, AC7109/2, or AC7109/3 must be included to become accredited by the Nadcap CT Task Group. The other checklists supplement these three checklists.

NADCAP CT AUDIT INSIGHT

Memoranda of Understanding

The CT Task Group currently has three Memoranda of Understanding (MoUs) with other Task Groups over the creation and use of checklists. These MoUs have been developed to limit the number of audits necessary and cost associated with multiple accreditations when there is significant overlap between the work performed within various Task Groups. The current list of Task Group MoUs, including details of each MoU, can be found on eAuditNet under Resources / Documents / Public Documents / General Documents / MOU Matrix.

The first MoU is with the Material Testing Laboratories (MTL) Task Group for the use of the AC7109/5 checklist. This MoU allows the MTL Task Group to use this checklist during MTL audits to accredit independent laboratories which perform coating evaluation.

The CT Task Group also has an MoU with the Chemical Processing (CP) Task Group to use their AC7108/1 checklist for Dry Film Lube and Ceramic Metallic Corrosion Coatings as a supplement to the CT developed audit criteria.

AC7109/8 for Grinding of Coatings was developed and maintained jointly by the CT and Conventional Machining as a Special Process (CMSP) Task Groups through an MoU that was developed between the two groups.

Commonly Used Checklists

The majority of work and audits within the CT Task Group are performed to three main checklists, AC7109, AC7109/1, and AC7109/5. This section will highlight some of the key features and requirements of those checklists.

AC7109

AC7109 is the core checklist and covers both general system requirements and the compliance and effectiveness of the quality system with respect to coatings processing. This checklist evaluates the effectiveness of the corrective action system, completion of the Self-Audit, the technical organization and training, process planning, documentation, preventative maintenance, calibration, and material handling.

One area of the checklist that generates a significant proportion of non-conformances (NCRs) is calibration. There are many pieces of equipment and gauges within a coatings facility used for processing, evaluation, and inspection, and all of them require calibration over the range of use. With so many opportunities for calibration issues to occur, a robust calibration recall system is essential to ensure all calibrated equipment is captured and remains up to date.

AC7109/1 – Nadcap Audit Criteria for Thermal Spray

AC7109/1 covers Thermal Spray technologies, which are the most common coating application methods used in the industry. This checklist examines coating material control and qualification, and then works through the coating process, including cleaning, masking, surface preparation, coating, demasking/cleaning, and inspection. This checklist looks to ensure procedures and work instructions have been adequately developed around all of these processing steps, and that the work done is compliant to that documentation.

Appendix A of AC7109/1 contains a great deal of information in terms of required parameters for each of the individual spray technologies. Failure to properly define, comply with, and/or monitor these parameters with tolerances, is consistently at the top of the NCR list each year. Considerable time and effort needs to be spent on Appendix A to ensure compliance and prevent NCRs to AC7109/1.

AC7109/5 – Nadcap Audit Criteria for Coating Evaluations

AC7109/5 is the checklist used to define requirements for Coating Evaluations. This checklist is applicable for
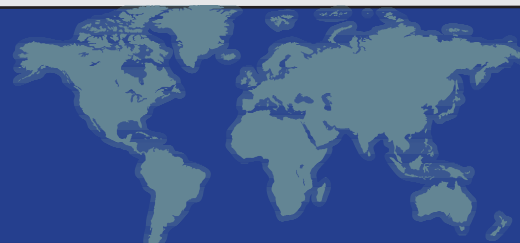
any testing performed using the following methods:

• Adhesion – Mercedes
• Adhesion – Vickers
• Bond Strength – Bend
• Bond Strength – Lap Shear
• Bond Strength – Tensile
• Coating Composition by Electron Microscopy
• Erosion – Ambient
• Fusion
• Hardness – Rockwell
• Hardness – Scratch
• Metallography/Microstructure
• Microindentation Hardness – Knoop
• Microindentation Hardness – Vickers
• Oxidation
• Residual Stress
• Thickness – Ball Crater
• Thickness – Metallographic
• Thickness – X-Ray Fluorescence (XRF)

This checklist covers technician qualification, procedures, equipment and facilities, test validation, and specimen preparation, microscopes, and thermal processing. There are specific sections dedicated to Metallography, Microindentation Hardness, Rockwell Hardness, Tensile Bond Strength, Bend Testing, Residual Stress, and Coating Composition. The requirements for these tests typically come from a combination of ASTM and ISO standards, along with customer specifications.

A common source of NCRs for AC7109/5 is specimen preparation. This section of the checklist requires a lot of parameters to be defined and controlled. It is critical to define all the control parameters for sectioning, grinding, and polishing. Even if these parameters are defined in an automated equipment program, they must still be defined in procedure.

Overall Best Practice Recommendation

With the recent changes to OP 1105 – Audit Process and the new Self-Audit requirements that have been introduced, the CT Task Group has developed guidance for the Coatings Audit Handbook on the completion of

a thorough and useful Self-Audit. The Coatings Audit Handbook, along with additional resources, is available in eAuditNet under Resources / Public Documents / Coatings.

Keys to an Effective Self-Audit – before the Self-Audit

• Download all the checklists within the scope of the audit, ensuring the revisions used are those that will be effective at the time of the Nadcap audit.

• All checklist sections and questions that are relevant for the sub-scope processes defined in the audit must be addressed.

• Although the PDF checklists are the official versions of the audit criteria, editable Word documents are also available in in eAuditNet under Resources / Documents / Public Documents / Coatings / Word Copies of Checklists. The Word documents are a useful tool for completing the Self-Audit but are unofficial copies. So, they should be verified against the PDF versions before use.

• Review the checklists and the Coatings Audit Handbook to ensure all the questions, interpretations of the questions, and the objective evidence necessary to demonstrate compliance to the questions is understood.

• Contact the Staff Engineers if clarification is needed regarding interpretation of questions or Task Group expectations.

Keys to an Effective Self-Audit – during the Self-Audit

• For each checklist, perform a thorough Self-Audit. The auditor should be a person knowledgeable with the process and equipment. The recommendation is that the auditor is not the same person who is performing the task.

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- Utilize several people, if possible, for the Self-Audit. Have more than one person to verify conformance.

- Verify and record the procedural documentation for each question (as applicable). Note the procedure number and section/paragraph on the checklist itself.

- If a procedure reference is not appropriate, document what objective evidence was found to substantiate conformance. This could be a router, tech plan, direct observation, records, etc.

- If this is not an initial accreditation audit, refer back to the previous Nadcap audit for non-conformances written against checklist questions. Validate the effectiveness of the corrective actions of the previous audit to ensure there are no non-sustaining corrective actions.

- The previous Self-Audit can be a tool to help with the current Self-Audit, but each answer should be reverified.

- If there has been a checklist revision since the last Self-Audit, additional emphasis should be placed on ensuring new or changed requirements have been verified for implementation.

- Perform job audits for each special process and test observations to verify work instructions meet Nadcap requirements.

- The requirement for the number of job audits and test observations required for the Self-Audit can be found in AC7109.

- The parts and specimens reviewed during the Self-Audit could be the same as the parts and specimens reviewed during the Nadcap audit, but they do not need to be. Therefore, the objective evidence provided for the Self-Audit could differ from the objective evidence for the Nadcap audit.

- It is a best practice to take into consideration the job tracker and the hierarchy for selection of jobs that has been developed by the CT Task Group. Please refer to the 'Selection of Job Audits' section of the Coatings Audit Handbook for further guidance.

Keys to an Effective Self-Audit – after the Self-Audit

- Identify and correct any non-conformance found during the Self-Audit. Perform root cause analysis when appropriate. Compliance to all Nadcap requirements must be met at the time of the Nadcap audit.

- The Self-Audit should be completed with sufficient time to implement any corrective actions necessary before the Nadcap audit.

- The Self-Audit must be uploaded to the appropriate audit in eAuditNet at least 30 days prior to the start of the Nadcap audit. If there is an associated Aerospace Quality System (AQS) audit, the Self-Audit to AC7004 must be uploaded to the AQS audit. If there is an associated satellite audit as defined in OP 1104, the Self-Audit checklists for the satellite are to be uploaded in to the satellite audit on eAuditNet.

- Both the Auditor and Auditee should use the Self-Audit checklists during the Nadcap audit as a reference to help complete the audit on time.

For more information, please feel free to contact Justin Rausch:

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OP 1118 - AUDIT OBSERVER

At the 2017 June and October Nadcap Meetings, PRI Board Chairman Michael J. Hayward of Northrop Grumman reiterated the PRI Board's support of the observation audit process, and encouraged all stakeholders to willingly participate and to adhere to the expectations of the process. This article provides more detail on the audit observation process and explain what an observation audit is, how they are performed, the feedback that is gathered, and how the feedback is used to improve the audit process.

Observation audits are not a new activity. They have been conducted for many years, albeit not as frequently as they are today. Observation audits gained additional significance when Task Groups were required to perform observation audits in 2015 as part of the auditor consistency initiative defined in OP 1117. To provide some context, 117 observations were performed in 2017 by Subscribers representing 14 different Subscriber Companies. There were 15 Nadcap Task Groups that conducted at least 1 observation audit in 2017.

An observation audit is a Nadcap audit that includes a Subscriber representative (typically a Task Group Voting Member) who attends all or part of the audit to observe the auditor and the overall audit process. The observation is most typically initiated by the Task Group through their annual observation audit plan that is developed as part of the Auditor consistency activities defined in OP 1117 Auditor Consistency. Observations can also be initiated by Subscribers who use the observation to train personnel supporting Nadcap on the audit process. For this article, the focus is on observations initiated by the Task Group.

The Subscriber representative (Observer) will review the list of scheduled audits and identify an audit that includes an Auditor specified on the Task Group audit plan. The Observer uses eAuditNet to schedule the observation. Once the observation is scheduled, the Auditor and Auditee are notified by an auto email from eAuditNet. The Auditee can decline the observation by contacting PRI. There are specific rules and timeframes associated with declining observations, so it is important

for the Auditee to review OP 1118 Audit Observers prior to declining an audit.

The Observer will arrive at the audit and may choose to witness all or only part of the audit. It is important to emphasize the role of the Subscriber is to observe the Auditor and audit process only. Observers are trained on the process and have agreed to adhere to specific rules of conduct when conducting the observation. The rules are detailed in OP 1118 and specifically state the Auditor is solely responsible for conducting the audit, and the Observer is not to interfere with or influence the audit in any way.

The Observer provides feedback on the observation by completing the t-frm-01 Observer Feedback form electronically in eAuditNet. Observers are encouraged to provide feedback directly to the Auditors if time allows. Observer feedback is reviewed by the Task Group and observation audit metrics are reviewed by the Nacap Management Council (NMC) Oversight Committee at each Nadcap meeting. The feedback form is focused on the performance of the Auditor. 22 of 26 questions pertain to the Auditor and are grouped into three main categories – Auditor Performance, Audit Documentation, and Technical Competence. Each question is rated on a scale of 1 to 4 with 1 being 'Does not meet expectations' and 4 being 'Audit best practice observed'. The remaining four questions pertain to the Audit Criteria and Audit Process. There are also open text boxes to allow the Observer to provide specific feedback on what went well and any suggestions for improvement. It is recommended to download a copy of the t-frm-01 Observer Feedback form from eAuditNet to see all the areas being looked at in the observation audit.

Feedback is reviewed by the Task Group and shared with the Auditor during their annual performance review. For the individual Auditor, receiving feedback from the Subscriber is invaluable as it reinforces the expectations of the Task Group,

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and it provides specific improvement opportunities. The Task Group uses feedback to identify audit criteria questions that may be unclear or poorly written, and areas of the process that may be over or under emphasized by the audit criteria. It is also an opportunity to ensure the allotted time for the audit is sufficient, and to generate training topics for Auditors as well as Auditees.

The NMC Oversight Committee reviews observation audit metrics to ensure Task Groups are meeting their annual observation plans, and to identify opportunities for improvement both in the observation process and the overall program. For example, metrics review has recently prompted changes to the observation process including elimination of multiple observers on a single audit, reducing the number of observations in each year at the same Auditee, prohibiting observation requests within 14 days of the audit start date, obtaining Auditee feedback on the Observer, and improving Observer training.

The Observation audit is an important component of the Nadcap program. It provides Subscribers the opportunity to directly observe auditors and the audit process ensuring the program is meeting their needs and expectations which in turn stimulates continuous improvement. PRI encourages all Nadcap participants to learn more by reading OP 1118, and to support and participate in the observation process whenever possible to help make the Nadcap program even better.

For more information on the OP 1118 – Audit Observer, please contact your Staff Engineer or Mark Hunkele:

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REVISED RISK MITIGATION PROCESS

In the November 2016 newsletter, there was an article on 'Risk Mitigation Process Changes' which provided details of the anticipated changes to the Risk Mitigation process. This article describes how the process, which became effective on January 1, 2017, has actually changed. The revision aimed to improve the process as a whole and more specifically covered:

- Obtaining Volunteers: the former process required Task Group Members to volunteer to support the Risk Mitigation Team and if the Auditee was not on the Subscriber's Approved List, it was very difficult to obtain volunteers.

- Timeliness of Risk Mitigation Review: failed audits often have a significant number of non-conformances and it was sometimes difficult to get the Risk Mitigation Team to review non-conformance responses within the defined timeframe.

The Risk Mitigation process is triggered by a Nadcap audit failure as explained in OP 1110 – Audit Failure, available on eAuditNet under Resources / Documents / Procedures and Forms / Operating Procedures. Any company which fails a Nadcap audit and wishes to schedule a new one within 24 months after failure must complete the Risk Mitigation process.

Significant Changes

A Nadcap Management Council Sub-Team worked on improving the Risk Mitigation process. Reviewing and revising the OP 1110 – Audit Failure was a necessary step towards improving the process. The main changes to OP 1110 are:

- The review of the corrective action responses submitted as part of the Risk Mitigation process will be performed by the assigned PRI Reviewer (typically a PRI Staff Engineer).

- 'Completion' or 'Suspension' of the Risk Mitigation process must be balloted to the Task Group

Subscribers for approval.

• A fee is required to provide the additional resources necessary to support this process, payable by the same means as for a Nadcap audit.

It is important to note the Subscribers continue to have visibility of all stages of the review and are able to provide input to the PRI Reviewers as necessary.

Starting the Risk Mitigation Process

The Risk Mitigation process is triggered by a Nadcap audit failure. A failure notification is sent by email to the Auditee's point of contact when an audit fails. The Auditee is then required to start the Risk Mitigation process as below:

1. Log in to eAuditNet, and go to 'Supplier Audits' under Supplier Application / Supplier Audits

2. Find the failed audit number and click on the number

3. Click on the button 'Start Risk Mitigation Process' at the bottom right corner of the screen

4. Confirm the request by clicking 'OK' as shown

By clicking OK, you agree to undergo Risk Mitigation and pay the fee 2000 dollars -which is necessary to support the additional resources required for this process.

It should be noted that the Risk Mitigation Process may be suspended by Task Group Subscriber ballot for "cause" (e.g. delinquency, poor or inappropriate responses, number of rounds of response). For a new audit to be scheduled to resume the accreditation process, all corrective action responses must be accepted and the Risk Mitigation Process completed. Please refer to OP-1110 "Audit Failure": located in eAuditNet under RESOURCES>DOCUMENTS>PROCEDURES AND FORMS>NADCAP OPERATING PROCEDURES for details.

OK   Cancel

If Auditees do not start the Risk Mitigation process, the audit will remain in 'Failed' status. The Risk Mitigation

process may be started at any time after the failure is announced and up to 24 months from the date of failure. Per OP 1110 – Audit Failure section 4.4.4, 'Corrective action responses are due within 21 calendar days of the date the supplier enters or resumes the Risk Mitigation process' and subsequent responses are due seven calendar days after being returned from the PRI Reviewer.

Posting Responses and Completing the Process

Auditees who choose to go through the Risk Mitigation process will receive an email identifying the response due date. Upon receipt of this email, Auditees shall follow the steps below to post their responses:

1. Once logged in eAuditNet, go to 'Supplier Audits' under Supplier Application / Supplier Audits

2. Click on the audit number link for the audit in the Failed – Risk Mitigation Supplier Review status

3. Click on the 'View NCRs' button as shown on the next page

4. Click on the link for the NCR number (or NCR type) to get to the NCR response forum

5. Scroll down to the Post Response – Risk Mitigation section

6. After corrective action responses are posted and objective evidence is provided for all open NCRs, click the button to 'Send For Risk Mitigation SE Review'. A confirmation will appear at the top of the page that the audit has been submitted to Failed-Risk Mitigation SE Review. The Reviewer then has 14 calendar days to review the responses

A maximum of four rounds of responses and/or 30 days of cumulative delinquency is permitted per the OP 1110 – Audit Failure. However,

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REVISED RISK MITIGATION PROCESS

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it is crucial to bear in mind that the PRI Reviewer may decide at any time to ballot the audit to the Task Group Subscribers to 'suspend' the process for 'cause'. This could be due to significantly delinquent responses, non-responsiveness, inappropriate responses, and for other reasons. If this happens, the specific rationale for balloting suspension shall be clearly documented in the ballot.

The Risk Mitigation process is complete when all corrective actions responses are accepted by the PRI Reviewer

and approved by ballot to the Subscribers. The audit is then moved to the Failed-Risk Mitigation Completed status as shown below. It is at this point only that a new audit may be scheduled to resume the accreditation process (provided a minimum of 90-days have elapsed from the date of failure as required per OP 1110 – Audit Failure).

It should be noted the auditor is required to verify implementation of all corrective actions during the next audit.

For more information on the Risk Mitigation Process, please contact your Staff Engineer or Mike Graham:

Mike Graham
Senior NMSE
Program Manager

T: +1 724 772 8646
mgraham@p-r-i.org

Audit Details -

Audit No.		Start Date		PRI Reviewer	
Audit Type	**Initial**	End Date			
Status	**Failed - Risk Mitigation Completed**	Auditor		Compressed	
Program	Nadcap				

Subscriber Customer(s):

Auditee Company:

Company Contact:		ITAR/EAR:	**No** , Indicated by
Commodity:	**Chemical Processing**	Terms Accepted:	Yes, Indicated by

Work Type Classification : Original Equipment Manufacturing (OEM)

Risk Mitigation: Agreed by

Scopes

AC7108 Rev H - Nadcap Audit Criteria for Chemical Processing (to be used on audits on/after 5 June 2016)   Cycle: 1-Standard
    General Cleaning and Pre–Cleaning
      Solvent Cleaning
    Ovens for Thermal Treatments with a set point at or below 250°F (121°C) or for Miscellaneous Heating Processes, e.g. Part Drying.
    Painting & Dry Film Coatings and Sol Gel as a Preparation for Paint – AC7108/1 must also be selected
    Solution Analysis and Testing – AC7108/4 must also be selected
    Stripping of Coatings
      Organic Coatings

Checklists	3936 AC7108 Rev. H	Supplier Merit	**No**	NCR	
	4199 AC7108/1 Rev. C JT 08-30-16	Accred Length	**Months**	No Observations	Create Observations
	4094 AC7108/4 Rev. B JT				

A VIEW FROM THE SSC LT

The Supplier Support Committee (SSC) was created in April 2002. Today, the SSC Leadership Team (SSC LT) is formed of volunteers from the Supplier community, divided by regions – Americas, Europe and Asia – and led by the SSC Chair.

Dale Harmon, Director of Quality for Cincinnati Thermal Spray and SSC Chair since October 2015, has been involved with Nadcap since the late 1990s. He has extensive experience of the program as his company underwent its first Nadcap audits in 1996 and has had over 40 Nadcap audits since then. Cincinnati Thermal Spray has three Nadcap accredited facilities and currently holds four accreditations: Coatings for all three locations and Chemical Processing for one of them. All four current accreditations held by Dale's company have Supplier Merit.

Having attended every single Nadcap meeting since April 2001, Dale considers his biggest learning is that 'it is important to be well-prepared and have a detailed timetable with a plan of action for Nadcap audits'. This is the main reason why he has been conducting Self-Audits since 2000 – now a mandatory part of the Nadcap process – as it helps prepare for the actual audit and ultimately increases the chances of being successful. 'Self-auditing can also be backed up by attending the Task Group meetings and SSC events at the Nadcap meetings as part of the preparation,' added Dale.

Dale believes the most valuable SSC activity is 'providing information to all Suppliers, including those who do not attend Nadcap meetings'. Indeed, newer Suppliers need to get information on the resources that are available to better prepare for Nadcap audits as this will help them save both time and money.

In recent years, the SSC has increased its efforts to create publicly available resources. They can be found on the PRI website here https://p-r-i.org/nadcap/supplier-support-committee/ and on eAuditNet under Resources / Documents / Public Documents / Supplier Support Committee (SSC). The Mentoring Program as well as the SSC Request Form are two major resources that Suppliers are encouraged to take advantage of:

- The Mentoring Program has been designed to help Suppliers get information on the Nadcap program from their peers and reference appropriate contacts within PRI to obtain answers to technical questions or assistance in other areas.

- The SSC Request Form has been developed to enable Suppliers to have direct contact with the SSC and ask questions or recommend projects.

Nadcap meetings are also a useful resource for Suppliers. There, the SSC holds several sponsored events on Mondays where they share information on changes to the program that affect Suppliers in order to help them better prepare for a Nadcap audit. The SSC also presents a Supplier Tutorial as well as an eAuditNet Tutorial, which support companies that are new to Nadcap and provide them with guidance on how to navigate the accreditation process. The presentation on 'Keys to a Successful Audit' is another useful session that gives an overview and steps of the Nadcap process.

'Talking and asking questions to the SSC members as well as taking the opportunity to discuss with the Subscribers and PRI Staff attending the Nadcap meetings is crucial', said Arno Toelkes, Vice President and Senior Manager Quality Assurance for Euro-Composites, based in Luxembourg. He is the SSC LT representative for Europe and also has extensive experience of the Nadcap program. Arno's first experience of a Nadcap audit was in 2005 and his company has had over 25 Nadcap audits to date. Euro-Composites comprises two facilities with Nadcap accreditations in Composites for both locations and Non Metallic Materials Manufacturing for the one based in Luxembourg – all accreditations have Supplier Merit.

Arno attended his first Nadcap Meeting in 2005. Since then, he has attended at least two meetings per year and considers his most important learning point is taking a holistic view to the Nadcap process, commenting that 'hiring and working with highly trained operators or certified technicians is simply not enough to successfully get through a Nadcap audit.' Every company wanting to achieve and maintain Nadcap accreditation should
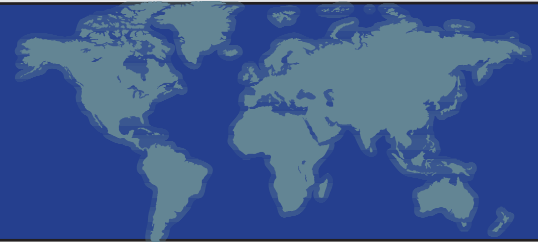
have detailed procedures in writing. 'More than just a requirement, this will help smooth transitions within the company, such as change in management, new employees or if the company is growing and roles are evolving', notes Arno. Such procedures have helped Arno and his company decrease the number of NCRs incurred in their Nadcap audits over time, and better understand the Audit Criteria.

Helping companies better understand the Nadcap process as a whole, and not getting lost among all the different Nadcap procedures and requirements is one of the activities of the SSC – and Arno believes it is one of the most important for the Supplier base. Arno also considers the Supplier Tool sheet, which identifies the location of useful documents and resources in the Nadcap program, as well as the SSC FAQs, which answer common questions about the Nadcap program and Nadcap audits, are critical resources to help Suppliers with the Nadcap process and explain where to find useful information. These two documents are publicly available on the PRI website here: https://p-r-i.org/nadcap/supplier-support-committee/

Finally, Arno – a non-native English speaker – and Dale, know the importance of interpreting the Nadcap Audit Criteria and Nadcap procedures correctly. Online tutorials and opportunities to discuss with the SSC members, as well as any PRI Staff, are great ways to deepen one's knowledge about the Nadcap program, get a better overall understanding or discuss program improvements. Becoming an active member of the SSC is another way to get the most out of Nadcap and it brings several advantages. Dale highlights that 'Suppliers who actively participate on the SSC have an additional avenue for providing input in to the program and they can potentially influence proposed changes that can affect them directly.' Another advantage of being an active member of the SSC is that it can enhance visibility for a company to its existing or potential customers.

The SSC is looking for volunteers to strengthen its European team. For more information on how to get involved with the SSC or if you have any questions, please contact the Nadcap SSC at NadcapSSC@p-r-i.org.

SPECIAL PROCESS SUBJECT MATTER EXPERTS WANTED

There are currently opportunities for aerospace special process subject matter experts to become independent contractors for PRI, conducting Nadcap audits on behalf of the aerospace industry.

For more information on Independent Contractor Auditor opportunities, go to www.eAuditStaff.com or contact Jennifer Eckels at jeckels@p-r-i.org or call +1 724 772 8579.

AS9100 AND AS9110 CERTIFICATIONS RENEWAL

Following the recent AS certification upgrade, PRI now requires Suppliers to upload their new AS9100 and AS9110 certifications to eAuditNet.

This applies to all new AS9100 and AS9110 certificates as well as if there is a change in Registrar or a new expiry date.

Please send your new certificates to Susan Frailey at sfrailey@p-r-i.org. She can also be reached by dialing +1 618 615 4478.

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This newsletter, and past issues are available on the PRI website at http://p-r-i.org/nadcap/