



Nadcap Measurement & Inspection Newsletter

March 2015

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From the Chair...

First of all, I would like to wish all the readers of our M&I newsletter a Happy New Year. Looking back at 2014, there were challenges and successes. Some of those were displayed and discussed at the Face to Face Meetings and contained in the newsletters, others were addressed 'behind the scenes'. One thing for sure is that M&I continues to move forward in the right direction and the industry understands why there is a need for such a program. If you take a look at the presentation (available on eAuditNet Resources / Public Documents / Measurement and Inspection) which I like to call the 'Shock and Awe' presentation, you can see some of the issues being found within the M&I community.



Simon Gough-Rundle

2015's challenge will be mandates. It is likely that mandates will occur throughout the year and should provide leverage for other Subscribers. I have been in discussions with the Nadcap Board of Directors and other Subscribers who are not necessarily part of the Task Group, introducing them to the M&I Program (using the Shock and Awe presentation). So far we have received a positive response. We will continue to work on those leads going forward with the program.

We held a supplier symposium during the Pittsburgh meeting in October but have decided not to continue hosting another for the time being. While the presentations were informative (and also available on eAuditNet) and many questions were asked, the attendance was limited. The Task Group will determine the need for a symposium when there are more mandates issued. Please don't think this is a closed door – it is not! If you have any questions, please let one of us know.

Following on from the October meeting and the decisions that were made, we have been in the process of modifying the structure of the checklists. One of the driving forces behind this fundamental change is to reduce audit duration. We are all aware of the drive for cost reduction, and audit duration is the key to this. This change has also allowed us to revisit the structure and generate a very pragmatic checklist layout. The Task Group has agreed that the duration of a CMM audit should be no more than two days. So the checklists have been reduced in size and the questions better aligned to the job audits. This will provide an audit program that is flexible (can be used to audit at component level or technology level) but also delivers the requested reduction in duration. A very difficult task made easier by the fantastic team spirit and dedication of the Task Group. Jim Bennett, our M&I Staff Engineer will provide further details in this newsletter of our intentions.

Simon Gough-Rundle
M&I Chair and Rolls-Royce (Assistant Chief Metrologist)

M&I Newsletter – Want to be on the Circulation?

The M&I newsletter is published periodically throughout the year. The newsletters are read by the Nadcap Subscribers, Suppliers, Auditors and anybody that happens to click on the latest M&I newsletter on the PRI website (www.pri-network.org/about-pri/media-center/key-documents). The aim of the newsletter is to communicate information relating to M&I within the Nadcap program to improve our process and to promote the sharing of best practices at all levels.

Have you stumbled across the M&I Newsletter by chance? Want to receive it on a regular basis? Keep up-to-date regarding the latest Nadcap M&I information by being added to the distribution list! To receive notification when a new edition has been published, please contact PRI (contacts on the last page) with your name, company and email address.

Nadcap Meeting Schedule

Nadcap meetings take place three times a year in locations around the world and are open to all Nadcap stakeholders and interested parties. The table identifies the meeting dates and locations through 2015.

2015	
Mar 2 - 6	Berlin, Germany
Jun 22-26	Montreal, Quebec, Canada
Oct 19 - 23	Pittsburgh, Pennsylvania, USA

The October meeting is held annually in Pittsburgh, Pennsylvania, USA. The Saturday and Sunday prior to the Task Group meeting comprises of an annual conference where all the Nadcap Auditors are updated on the program, policies, expectations and commodity (e.g. M&I) related issues.

The Task Group meetings comprise of open and closed meetings. Open meetings are for all Nadcap stakeholders and interested parties when items of a confidential nature are not discussed. Some examples are checklist discussions, procedural requirements, technical clarifications not associated with an audit, metrics, general M&I information, etc. A closed meeting is held for Nadcap Subscribers where confidential

information is discussed: examples being mandate discussion / status, Auditor issues, process escapes, Supplier advisories, audit report packages, etc.

There are many advantages to participating in a Nadcap meeting, such as:

- Learning about and participating in Task Group activities, such as checklist development
- Attending Nadcap Management Council (NMC) and Supplier Support Committee (SSC) meetings to learn about current activities in the Nadcap community and sub team initiatives
- Networking with other delegates including aerospace Prime contractors, Suppliers and PRI staff
- Benefiting from free eQualLearn training such as Root Cause Corrective Action, How to Prepare for a Nadcap Audit and Introduction to Pyrometry

If you are interested in attending the Nadcap Task Group meetings, please visit the PRI website at <http://www.p-r-i.org/nadcap-meetings>

And note also that there are no fees to attend the meetings.

James E. Bennett – PRI Staff

Accreditation Status

I am pleased to announce that following the first M&I audit that was performed in November, accreditation was granted on Nov 28, 2014. They are the first company to achieve this status. Obviously it is not possible to discuss the results, but it was a success for all involved in the program.

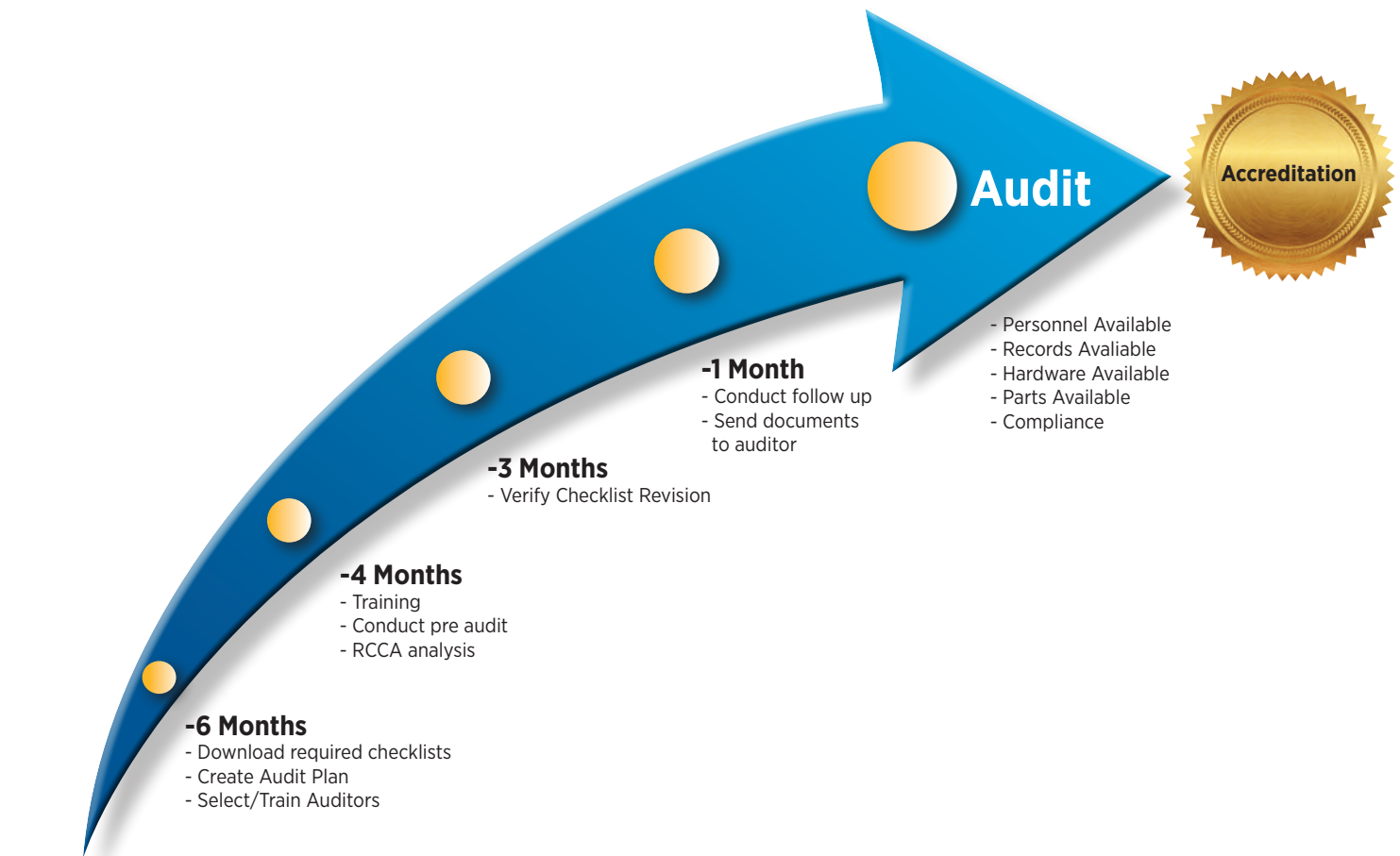
Other companies are beginning to contact PRI requesting audits to be scheduled in 2015.

James E. Bennett – PRI Staff

Audit Preparation

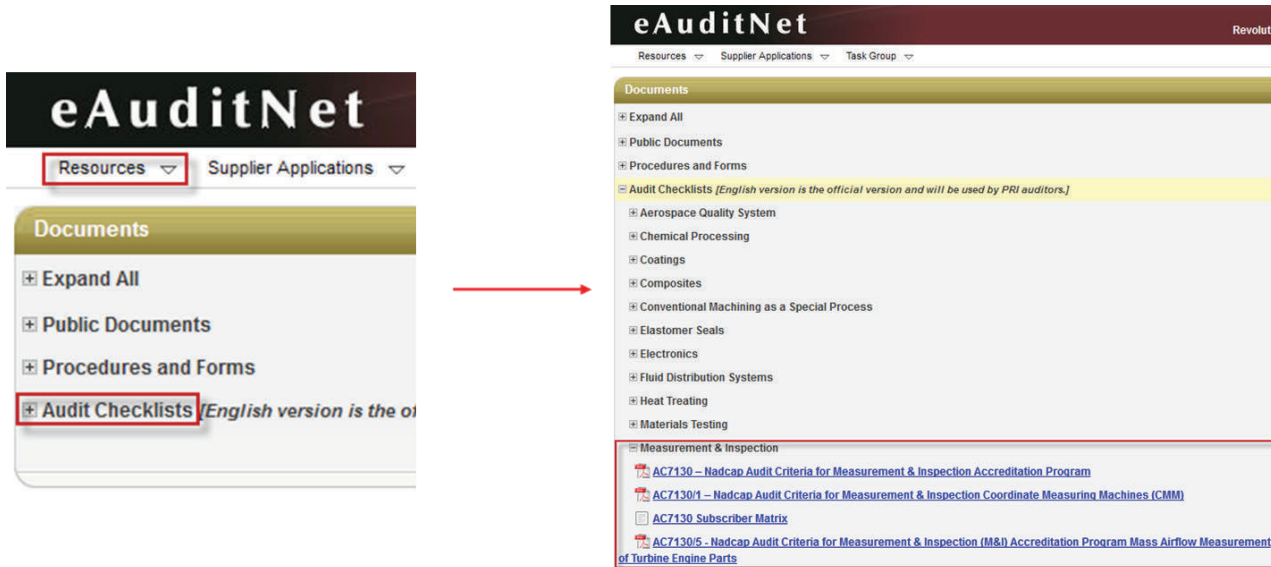
In the last edition of the newsletter there was focus on the types of findings that were identified on the test audits. In this newsletter we are going to look at audit preparation. The information in this article describes the process of obtaining an initial Nadcap accreditation and areas to consider for a successful audit.

To provide an idea on timelines and how much preparation is required, see diagram below:



Six Months Prior to the Audit

1. Download the checklist from eAuditNet (www.eAuditNet.com)



2. Read the Checklist

Understand what the expectations are for an M&I accreditation. There may be a need to purchase new equipment, train personnel, change or implement a new system or process, etc. Understand the expectations of AC7130. For example paragraph 2.2.1 – *“The supplier shall complete an audit using AC7130, all applicable slash sheets in preparation for this audit. Location of the objective evidence for compliance shall be identified next to the applicable question”.*

It is imperative to conduct a pre-audit using the checklists that your company will be audited against by the Nadcap Auditor. The major reason for failing to obtain an accreditation after a Nadcap audit is a lack of preparation and understanding of the expectations.

3. Develop an audit plan

Involve everybody that would be expected to be part of the audit. Ensure visibility of the process to avoid surprises for personnel who may not know anything about the Nadcap audit or the expectations. Consider including Inspection Leads, Inspectors, etc.

Include job (compliance) audits – One of the main purposes of the Nadcap audit is to witness parts being processed against the applicable checklists. Not having jobs available

will prevent completion of the audit and subsequently obtaining accreditation. Develop a timeline as to when these audits will be conducted. Maybe the audits are broken into sections or conducted by a team of auditors. If the Nadcap audit is two days, then as a minimum the preparation audit conducted should be two days, if not longer.

4. Select and train auditors on the audit checklist and reporting

Auditing is a skill and it requires mentoring and training to become an effective auditor. If any training is required, now is the time to set things in motion, whether it is training internally or externally. The same goes for the auditee. Nobody enjoys having an individual asking many questions on how a part is inspected or watching over your shoulder while you perform a test. It may feel as though the auditor is trying to catch out or trick the auditee, which is far from the truth. A Nadcap audit is an audit to verify compliance and not non-compliance, therefore the auditee needs to understand their role in the audit and what the expectations are. This does not mean the auditee needs to be a skilled actor in order to ‘perform’ for the auditor, but more for the auditee to understand that they go about their regular business as they would do normally, in regard to inspecting parts.

Four Months Prior to the Audit

1. Training

Any training needs determined when reviewing the checklists should be completed at this point to ensure that the skills are set in place. The type of training is dependent on the individuals but from a Nadcap perspective, there is a wealth of information available on the PRI website (www.p-r-i.org), eAuditNet (www.eAuditNet.com), eQualLearn (www.eQualLearn.com) and not to mention the free training that is available during the Nadcap Task Group Meetings. For more information, contact the Staff Engineer.

2. Perform the Audit using the Nadcap Checklists

The audit duration as a minimum should be the same as the actual audit performed by the Nadcap audit. You will be addressing the same questions as the auditor, so it does not make sense to ignore any of the checklist questions. Review the checklists objectively against each checklist item.

- Record where the evidence can be found against the checklist question. This will help to expedite the actual Nadcap audit (see example below).

4.2	Calibration		
4.2.1	Calibration – General		
4.2.1.1	Is there a procedure that addresses the use, operation, handling and preparation of measurement equipment that require calibration?	QCP 10 - 5.11.1, 5.11.2	YES NO
4.2.1.2	Does the procedure include calibration intervals and a system for periodic maintenance of measurement equipment?	QCP 8.9.10 - 3.13	YES NO
4.2.1.3	Does the procedure include specifications for the calibration of equipment?		YES NO
Compliance Assessment Guidance: When the customer does not identify the methods to be used for calibration, the supplier shall select the appropriate methods that have been published either in international, regional or national standards, or by reputable technical organizations, or in relevant scientific texts or journals, or as specified by the manufacturer of the equipment.			
4.2.1.4	Does the procedure include requirements for outside agencies when used to calibrate measuring equipment?	QCP 8.9.10 - 3.13	YES NO N/A
Compliance Assessment Guidance: QCP 8.9.10 - 3.13			
<ul style="list-style-type: none"> This does not need to be contained in a calibration procedure but must be traceable to the calibration procedure. Example – Flow down of requirements from customers through tier 1 to tier 2 suppliers, etc. 			

- Do not accept verbal verification. The Nadcap auditor will not. Ask for the objective evidence or witness the process being performed.
- Do not assume anything. If you are responsible for example, calibration records, go and look in the filing cabinet or wherever the location may be and verify all information is present.

- If during the audit a question cannot for certain be answered as YES or N/A, contact the Staff Engineer for clarification or somebody that is familiar with the Nadcap checklist.

3. Root Cause Corrective Action (RCCA)

Typically companies do an excellent job of addressing the immediate corrective action to nonconformances (comply and contain). It is the root cause and long term corrective action that can provide difficulties. This article does not propose to go into depth on root cause and corrective action (this will be addressed in a future newsletter), however it is important to note. Whenever performing an audit using the Nadcap checklists, treat it like one of your internal audits. If a finding is noted, then issue an internal nonconformance and monitor it as you would with any nonconformance issued during an internal or a customer audit.

Three Months Prior to the Audit

1. Verify checklist revision

Nadcap follows a 90 day implementation period for all revised checklists. It is always a good idea to verify the checklist revisions you are using, in case there is a revision. If your company has an audit scheduled your company contact will get a notification of any revised checklists. In theory it should not be necessary to verify the checklist revision, but for the time it takes to check, it can be worthwhile. Unfortunately there can be circumstances within the company that may change, such as personnel. There have been occasions where the company contact has left the company or moved to another position. This can result in a loss of or ignoring of the email notification of a checklist revision change. Always ensure that any changes to the company contact are modified immediately within eAuditNet. It would be very unfortunate to be audited to a different revision of the checklist and not be aware of this.

One Month Prior to the Audit

1. Send documentation to the auditor

In accordance with AC7130 paragraph 2.2.1, it is a requirement that the company being audited send the auditor the required documentation 30 days prior to the audit. The auditor will have likely already contacted the company, but please ensure that the information is promptly sent to the auditor. Not providing the documentation can result in additional time being added to the audit (to allow the auditor to review the documents), or in the most extreme case, cancellation of the audit. This would not benefit anybody in the Nadcap program.

2. Conduct Follow Up

Now is the time to conduct a follow up on any gaps that were identified three months prior. Verify that everything has been completed and meets the expectations of the Nadcap checklist.

The Nadcap M&I Audit

This is where all the hard work prior to the audit pays off. You know where all the requirements are addressed in procedures, work instructions, travelers, etc, as the objective evidence is noted on the audit checklist you completed four months ago. The personnel involved in the audit are aware of the expectations and more comfortable with answering the auditor's questions. It allows the audit to proceed more efficiently. A 'Win Win' for everybody involved.

Accreditation

Simply put, CONGRATULATIONS!

James E. Bennett – PRI Staff

Checklist Status

Some key actions came out of the meeting back in Pittsburgh. The first was associated with the audit duration (discussed earlier), the other being the overall content and direction.

The audit duration for a Coordinate Measurement System Technology was set at three days, based on the content, flow and witnessing of three compliance jobs. Those Subscribers that are at an advanced stage of mandating M&I had indicated the duration of the audit needs reducing from three days to two days to make the program more palatable for the stakeholders who ultimately give the 'green light' to mandate.

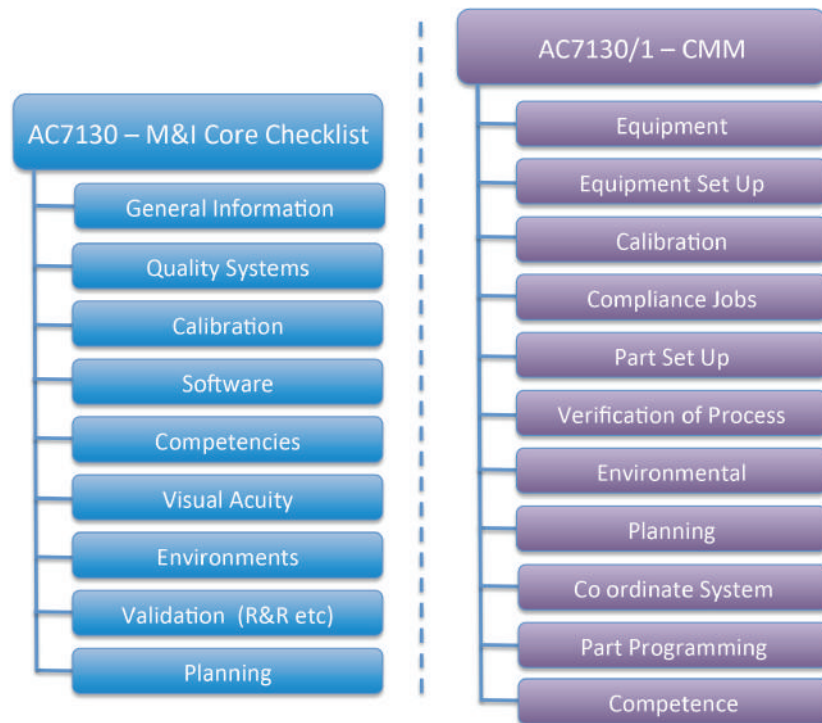
This action prompted the Task Group to re-look at the checklist and further understand the expectations and purpose of the overall accreditation.

As of writing this article, the Task Group has conducted a risk based review of each question of the affected checklists. The intent was to remove the low risk, high audit time questions and also any questions that had a strong AQS flavor (procedural type questions), which has since been completed. In addition, the Task Group agreed that instead of three compliance jobs, only two would be necessary. Another aspect pivotal to moving the group forward was inspection capability. That is the capability of an inspection area to choose the right measurement device to verify the part meets the drawing / model requirements. The AC7130 does contain capability type questions; however this is not everyone's expectation. Some want to see the technology audited and others would like more audit questions focusing on the capability determination process. It was a result of this discussion that led to the agreement for a separate 'slash sheet' checklist to be developed (AC7130/0).

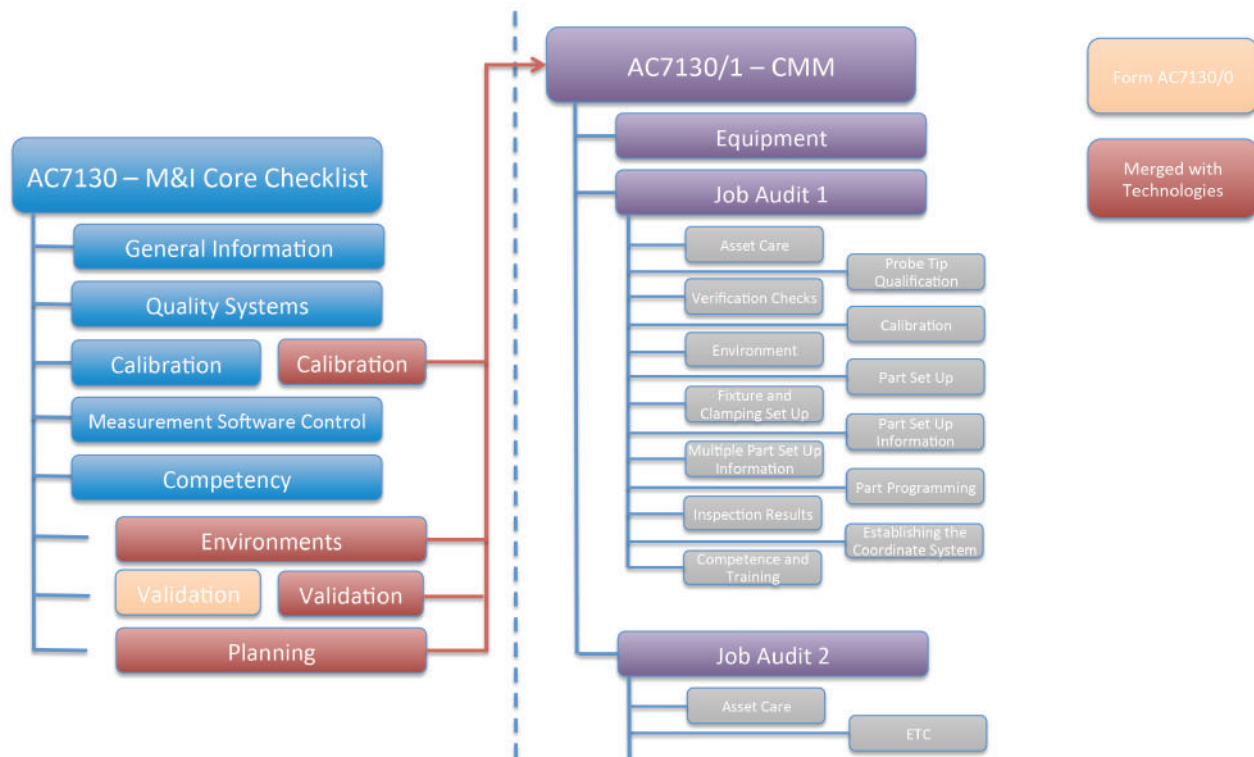
This and the proposed changes to the checklist flow (see pages 7 and 8), will allow the number of days to be reduced.

These revised checklists were balloted in January 2015 to allow any comments to be addressed during the face to face Task Group meeting in Berlin.

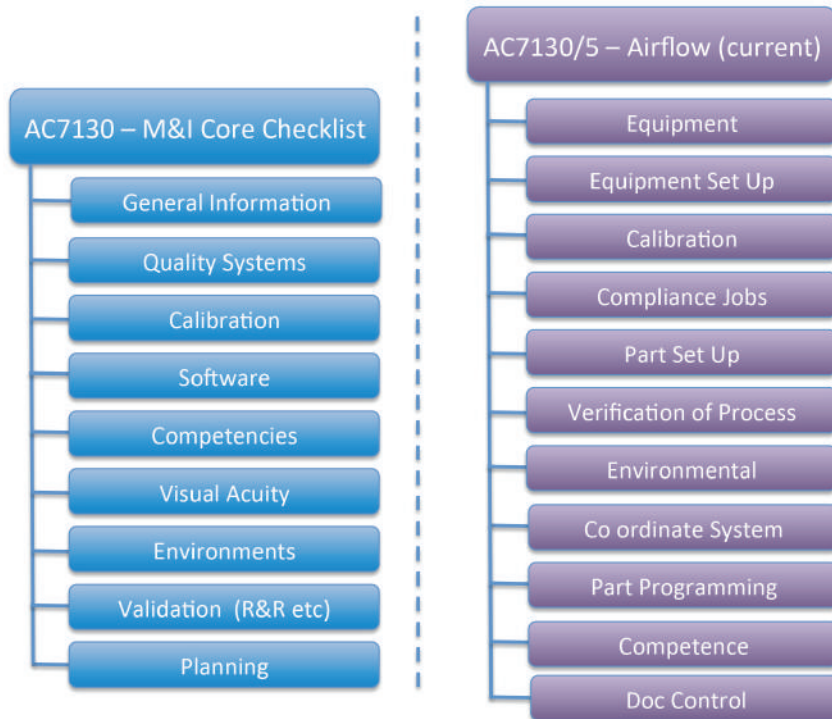
M&I - CMM Accreditation Checklist Structure - Current



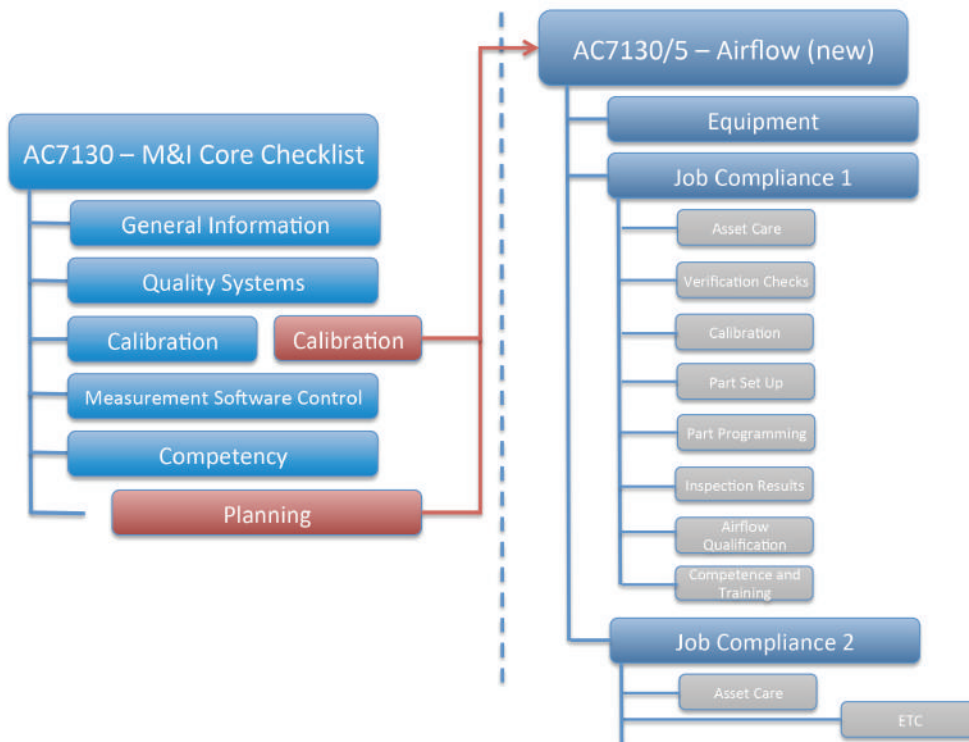
M&I - CMM Accreditation Checklist Structure - New



M&I – Airflow Accreditation Checklist Structure - Current



M&I – Airflow Accreditation Checklist Structure - New



James E. Bennett – PRI Staff

Meet the M&I Task Group Representative - SAFRAN GROUP

I would like to take this opportunity to introduce one of our subscriber task group representatives, Cyril Lerebours from the SAFRAN Group. Cyril is one of the founding members of the M&I Task Group bringing his wealth of experience in Metrology to keep us on track with the purpose and intent of the Nadcap M&I program. While English is not Cyril's 'first language', Cyril is an excellent listener and speaker within the group to understand what is discussed and agreed upon. This can be extremely challenging with the American-English and the English-English dialogue used at the meeting. Without further ado, I will pass you over to Cyril.....



Hello as Jim mentioned, my name is Cyril Lerebours and my position at SAFRAN is Head of Metrology within the SAFRAN Group. Taking note that SAFRAN comprises of the following companies:

- Snecma
- Turbomeca
- Techspace Aero
- Herakles
- Aircelle
- Hispano-Suiza
- Labinal Power Systems
- Messier-Bugatti-Dowty
- Sagem

I have been with the SAFRAN GROUP for over 25 years. I began my career in the design office building. After two years of state funded engineering studies, I joined SNECMA in the test bench department for rocket engines, where I was responsible for maintenance of the test benches.

For reasons of work load, I expressed an interest in the possibility for Snecma to expand metrology services for other industries. Given this success, I took charge of metrology Snecma Vernon and a few years later all Snecma industrial plants.

As part of my duties at Snecma, I optimized the metrology function while maintaining competence for strategic activities. In 2012 the SAFRAN GROUP asked if I would propose a new metrology organization for all the Groups. Today, as SAFRAN metrology leader, my team assists internal and external companies to optimize their metrology functions. Our goal being:

- To put in place a process of operation and IT management systems for the metrology
- Support the procurement organization
- Work on improved methods of control.

My participation in Nadcap fits into this approach. With the support of SAFRAN GROUP we actively participate in the M&I Task Group and arrangements are currently under way to study for the deployment of Nadcap M&I within the SAFRAN Group.

On a personal note, I play tennis and I try to run. I enjoy skiing and have a great affinity for the sea and all water sports.

Thank you all for the good atmosphere within the M&I Task Group.

Cyril LEREBOURS – Metrology Leader SAFRAN GROUP