



A successful audit begins with thorough preparation that includes getting everyone ready so they are focused on performing well.

Be attached to process, not results of Nadcap audit

The dreaded Nadcap audit. The daunting AC7102 main checklist with 10 job audits. The strict requirements of AC7102/8 pyrometry adhering to AMS2750. The additional general AC7000 and supplier AC7102/S checklists. One would think that having the questions stated in these checklists would be like having the exam prior to taking it — the exam should be a breeze!

But as the saying goes in the aerospace industry, “Say what you do, do what you say.” It is still a big responsibility to prepare for a successful audit, even with advance knowledge of the checklists. And it all starts with the preparation. More importantly, it starts with empowering the operators on the floor to be ready for the auditor and the types of questions they might ask so they are focused on performing well, not worried about how the results of the audit will turn out. We must be attached to the preparation of the audit and effort put in, not on the results of the audit and tallying how many findings you have.

AUDIT PREPARATION

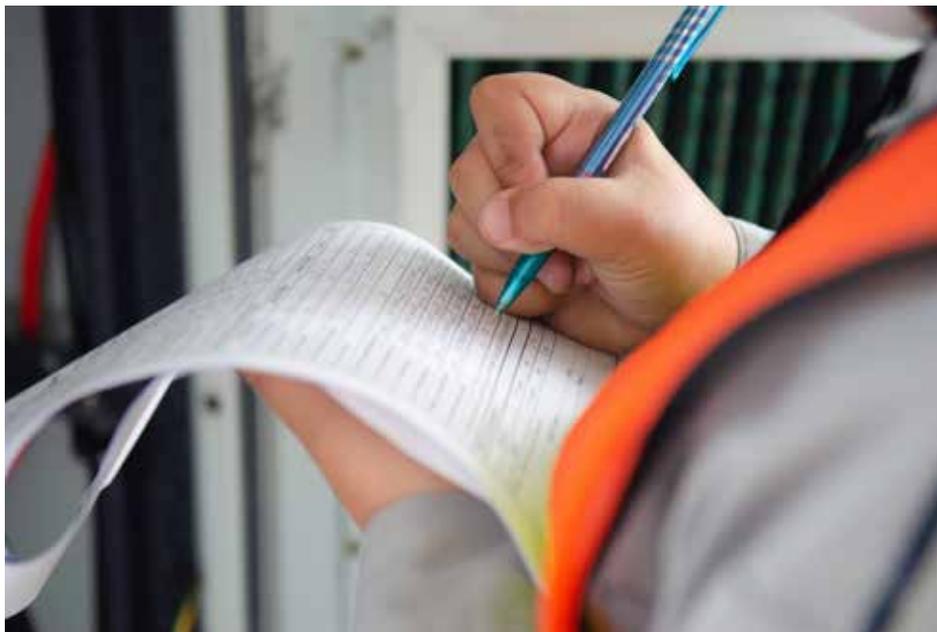
Nadcap preparation always begins as soon as the last audit is over. Regardless whether you are on the merit program or still on the annual frequency, the preparation is critical to a successful audit. Aerospace requirements are now requiring in their respective QMS (quality management system) documentation that the Nadcap audit checklists be used for internal audits by a person not specialized in heat treat. This additional perspective can help bring clarity and opportunity to specific requirements.

Because of the daunting number of pages in each checklist, it can be all too easy to hurry through the responses. Remember even if it’s N/A, the requirement now is to indicate why. This, although irritating, is a second layer of questioning to ensure that the question indeed does not apply.

One approach I have taken with the heat-treat team at Hitchiner Manufacturing Co., Inc. is to empower the heat-treat operators with both a metallurgical understanding of why parts get solution and aged or stress relieved, coupled with the stringent requirements of furnace pyrometry requirements. One of the techniques we use prior to the audit is sitting together in the classroom as a team with each qualified operator going to the white board and teaching certain aspects of pyrometry to the rest of us. This accomplishes two things. One, it allows the employee to put in their own words — on the spot — of their understanding of sensors, calibration, SATs, and

TUS. Second, it allows the rest of the team to ask questions to make sure all requirements are covered. We also discuss AC7102 checklist requirements such as vacuum calibrations and even process control testing. The discussions are also opportune times for new ideas and suggestions to improve the process.

Knowing the “why” goes much further than simply stating “you turn the furnace on, pull the recipe, and take it out when the cookie timer goes off.” Teaching the metallurgical phenomena of micro-



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structure evolution to operators so they can then explain the concepts easily even to their kids provides clarity when troubleshooting misruns. When there is a power outage, the operator can visualize what internally happened to the microstructure and, along with following the requirements by the customer, help make the correct decision for what is best for the parts.

EXPECTATION FOR THE AUDIT

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Of course, the desire is to do well in the audit. But this desire needs to be channeled all during the preparation so that during the audit the process is on autopilot. Basketball players are not trying to figure out the technique of a free throw in the middle of a game — and operators should not be fumbling on how to explain the comparison method SAT when applicable.

DURING THE AUDIT

During the audit, it is important to show up early. Earlier than you usually come to work. It allows for a little more time to settle and sort some of the daily tasks out before your day is consumed with the auditor. When you are one of the key members in the audit, you are expected to devote your time to the auditor. So, careful planning weeks prior must be made to ensure you are not pulled away.

One thing that helps in preparation is to notify key support groups such as maintenance and IT of the audit and the types of questions they might be asked (e.g. maintenance to demonstrate the PM program and how quality signs off on pyrometry requirements for maintenance activity and IT for software control and even NIST traceability for clocks if it was programmed).

It is not hard to understand why most people are afraid of audits. It's a time when supposed "weakness" or "error" is exposed. It's a

time when the whole year has been going just fine, but now someone is coming in much like a police officer who catches you speeding (or you were supposed to be maintaining the normal periodic TUS schedule but decided to go extended periodic before the successful passes were completed).

However, findings are part of the audit. That is why we get audited. That is why coaches review errors with their athletes during games and practice — to improve. You want to find what is missing in your process. How can anyone learn and improve if they don't learn from their mistakes?

Being humble and open to getting a finding is what is needed, and often most difficult as there is pride in one's work. Findings are NOT ways to find out how to fire employees. It's about finding the opportunities to improve.

AFTER THE AUDIT

When there are findings in the Nadcap audit, there is a strict 21-day requirement at the time for the initial response for the corrective action. Depending on whether the staff engineer approves of the corrective action, the corrective actions can go additional rounds with 7-day extensions to resolve the issue. As soon as the audit wraps up and the task group votes on the pass or fail of the overall audit, it is back to business as normal. Preparation. 📧

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