

# 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/](http://www.p-r-i.org/Nadcap/)

## WELCOME TO THE FOURTH ISSUE

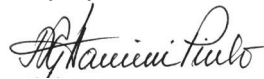
This is the fourth issue of this Nadcap newsletter. PRI has been publishing and sharing this content for one year now. I would like to thank everyone who has given us feedback to help improve this newsletter, and for the positive comments my staff and I have received on the content to date.

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 the appropriate use of the Nadcap mark of conformity, and one with tips about how to best use the online Qualified Manufacturers' List (QML) on eAuditNet. Also highlighted are the results of the biennial Nadcap Supplier Survey that the Nadcap Supplier Support Committee released late last year, as well as the continuance of the article on root cause corrective action from the previous newsletter edition.

In addition to general Nadcap articles, each newsletter will have a particular technical focus. In this issue, there is detailed information regarding Nadcap welding audits. Nearly 500 Nadcap welding 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



## RCCA NADCAP STYLE

Overview of Root Cause Cause Corrective Action (RCCA) - Nadcap Style (Part Two)

In the March 2016 issue of the Nadcap Newsletter, part one of *Getting To The Root* was published. That article provided an overview of the initial stages of root cause analysis and corrective action implementation including containment, forming a team, gathering and analyzing data and determining causes and impacts. Part two focuses on identifying a solution and assessing it to ensure effectiveness.

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## NADCAP NEWSLETTER

*Nadcap: 25 Years of Excellence*

# RCCA NADCAP STYLE

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### Determine Corrective Actions

Having built a robust cause chain, you should be in a position to confidently identify the problems in need of resolution. While some may have been addressed as part of your immediate containment activity, others will require a more in depth solution i.e. root cause preventive action.

Preventive corrective action can also be thought of as sustaining, because you cannot prevent the event at this point. It has already occurred. Actions taken now are intended to prevent the problem from recurring. The goal is to break the cause chain by addressing the contributing causes as well as the root cause. It is important to resolve the contributing causes, not just the root cause, because failure to do so could lead to a contributing cause becoming a future root cause.

Although preventive action may be one action, it could also be a series of actions, that positively change or modify system performance. Nadcap is, after all, a process audit so this is about making constructive changes to the systems that support the process in order to prevent event recurrence. Preventive action focuses on systemic changes and the points in the process where there is potential for failure. This includes contributing causes as well as direct and root causes.

The focus of preventive action is not individual performance, human error or personnel shortcomings. Consequently, "Operator error" is not an acceptable root cause response to a non-conformance identified in a Nadcap audit. It is the company and its processes being audited, not the individual.

So the question to ask yourself, if you get stuck at the point of human error as a root cause, is: if that individual was not working here anymore, would that make it impossible for this issue to occur again?

The answer is almost certainly no. If one individual can make a mistake, it means there is elasticity in the system to allow them to do so, and it is the responsibility of the company to close those gaps, whether they are procedural, training or otherwise. When developing the solution, it is worth bearing some guidelines in mind:

1. Accept that there is no perfect solution. Any solution that you and your team think of will be subject to a number of factors (see a - f below). In some cases, therefore, you may be required to make a judgment call as to the appropriate solution, based on your knowledge of the company and the issue.

The list below is not exhaustive, but provides some of the key considerations:

#### a) Feasibility

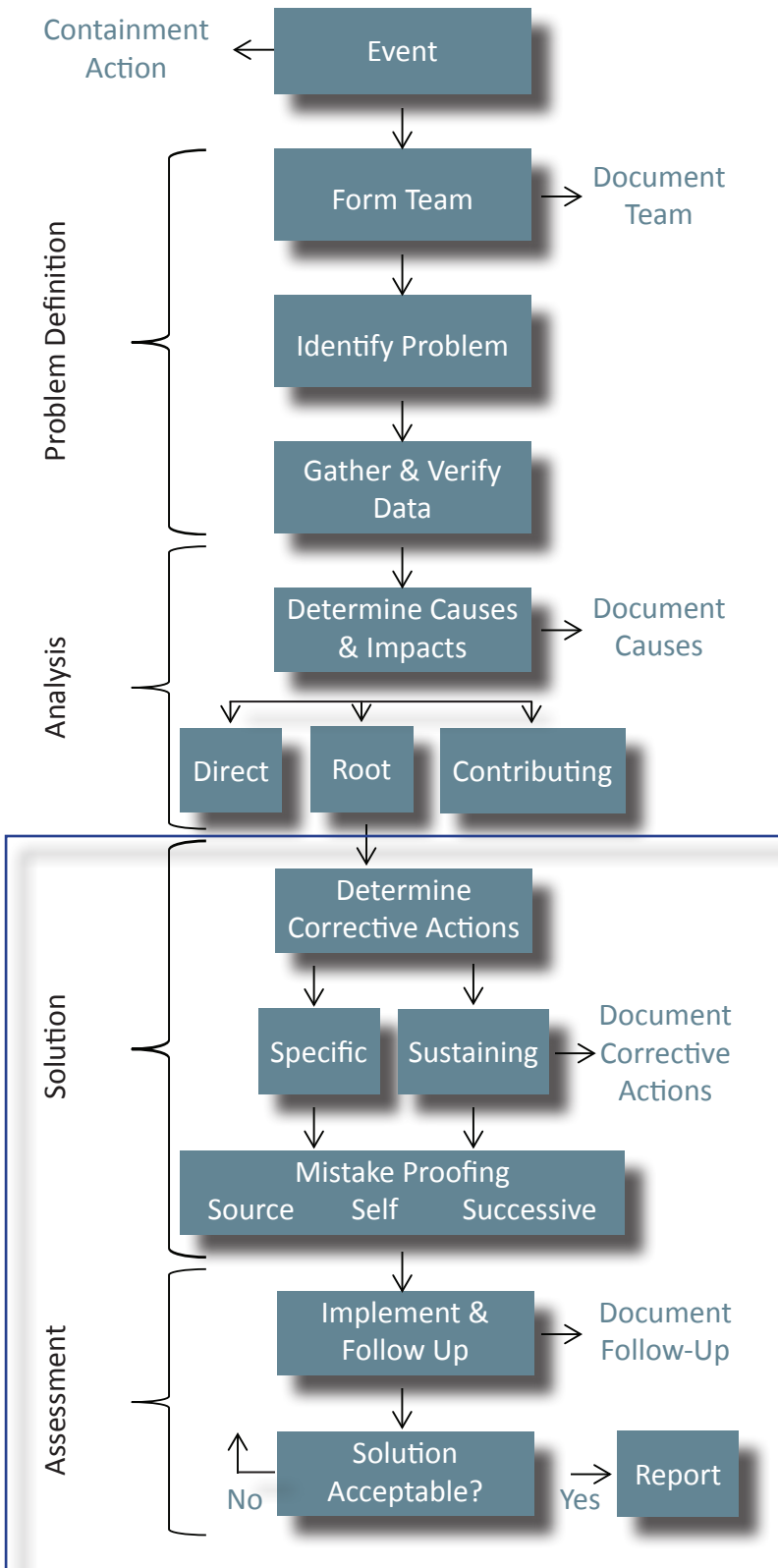
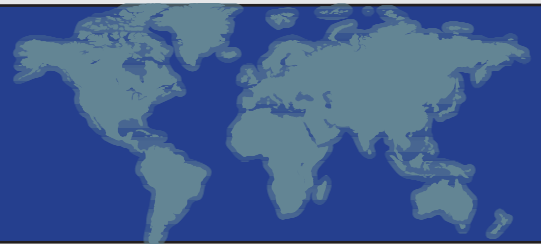
The solution needs to be achievable given the resources and timeframe available to the company. Commercial restrictions play a part in any business decision, and this is no different.

#### b) Effectiveness

There must be a reasonable expectation that the solution will fix the problem that has been identified. A solution that is not effective is not only a waste of time and resources, but it creates a risk that the problem will recur which, apart from anything else, could result in a major nonconformance at the next Nadcap audit due to non-sustaining corrective action.

#### c) Budget

The budget should be realistic given the available resources of the company and proportionate to the size of the problem. There is no sense in investing in



a solution that is out of all proportion to the original problem.

**d) Employee Involvement**

The staff impacted by the event should be involved in finding the solution. Their participation will help encourage their support for the solution and as they are best positioned to understand the issue, their insight will be invaluable in identifying an effective solution.

**e) Systems**

As previously described, the focus of the corrective action should be on the systemic issue in the process, not on the personnel involved. While operators do make mistakes, the key is to identify the conditions that made that mistake possible. For example, were the instructions clear and easily accessible? Had there been recent personnel changes? etc.

**f) Contingency Planning**

While it is expected that the solution will succeed at addressing the issue, it may be flawed. Critical parts of the solution itself should be subject to contingency planning to ensure that a misstep at any point does not cause a breakdown of the entire solution.

2. Take time to reach a solution and ensure you give adequate

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consideration to alternatives. It is key to have an open mind and to follow the chain where it leads, even if that is to your department or a procedure you have written. Always remember that the key is to fix the problem.

3. Be open to the possibility that what you have identified as the root cause may actually be a symptom of a larger problem. Keep following the chain as far as is reasonable and create as many chains as needed to exhaust the possibilities within the company's control.
4. Challenge assumptions. You may know your operation well, but be prepared to revisit assumptions that are not supported by evidence. Make sure you have the evidence available because although you may not need it, the Nadcap auditor, auditor reviewer and Task Group might.
5. Evaluate the corrective action to determine whether it lowers the risk to an acceptable level, and also whether implementing it might have any adverse effects that outweigh the benefit. This requires careful consideration so that the solution does not result in additional problems.

### Assessment

As part of the assessment of the corrective action(s), it is important that a member of the team conducts a follow-up review to ensure that they were fully and properly implemented as stated in your non-conformance response in eAuditNet, as this is what the next auditor will be looking to verify.

The corrective actions must be instituted as stated and it is key that someone is given the responsibility of ensuring that is the case. Part of their task is to read the corrective action response literally and check that

it was achieved according to what was stated, including the timeframe, documentation modifications, training, calibration and so on.

When developing the corrective actions, bear in mind the level of scrutiny that they will be subjected to, and ensure that the team can deliver according to what is written. Be careful in the terminology you use - words like "everyone", "always" etc. may cause you problems later. Remember that you will have to show that you have done what you said you would through objective evidence. The easiest way to be able to do that is to have that at the front of your mind during the process of developing and writing the corrective actions.

Another part of the assessment process is to validate the effectiveness of the corrective actions. Did they achieve the intended outcome? The only way you will know is by defining the criteria for effectiveness and acceptability in advance. Without these benchmarks, it will be difficult to measure the outcome.

The first step, then, is to define the criteria and the frequency required for evaluation; secondly, to conduct the evaluations against the stated objectives at the stated frequency and record the results; and finally, to review the results and close, or revisit, the cause chain as appropriate.

Again, bear in mind that the effectiveness of the corrective actions will be verified by the Nadcap auditor during subsequent audits. Non-sustaining corrective actions are one of the biggest sources of findings across all Task Groups and can be cause for removal of Supplier Merit so it is well worth putting in the time up front.

*Part one of RCCA Nadcap Style was published in issue three of the Nadcap Newsletter, dated March 2016, and is available on the PRI website [www.p-r-i.org](http://www.p-r-i.org) under Key Documents.*

## NADCAP WELDING AUDIT INSIGHTS

The Nadcap Welding Task Group was established in 1994 and is currently led by Chairperson Steve Tooley from Rolls-Royce, supported by Vice Chairperson Holger Krueger from Airbus. Within the Task Group, there are over 50 industry representatives. They participate in technical discussions and decision-making three times per year at Nadcap meetings.

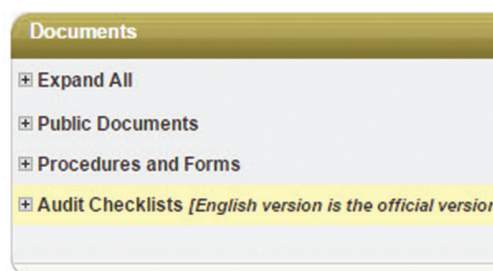
Additionally, Nadcap welding information is shared at regional technical symposia organized by PRI, the not-for-profit organization that administers Nadcap. For more information on the upcoming regional technical symposia, please contact PRI at [pri@p-r-i.org](mailto:pri@p-r-i.org)

For those industry stakeholders who are unable to attend the Nadcap meetings or the technical symposia and benefit from the opportunity to participate and learn about Nadcap welding audits face-to-face, the intent of this article is to provide some insight into common nonconformances (NCRs) found during Nadcap welding audits, from a “lessons learned” perspective.

Process specific requirements have been developed by the Welding Task Group and are contained in the AC7110 series of checklists:

- AC110: Welding/Torch and Induction Brazing
- AC110/1: Brazing (Torch and Induction)
- AC110/2: Flash welding
- AC110/3: Electron Beam Welding
- AC110/4: Resistance Welding (Spot, Seam, Projection)
- AC110/5: Fusion Welding
- AC110/6: Laser Welding
- AC110/7: Rotational Friction/Inertia Welding
- AC110/8: Diffusion Welding
- AC110/9: Percussion Stud Welding
- AC110/12: Welder/Welding Operator Qualification
- AC110/13: Evaluation of Welds

These checklists are available on eAuditNet under Resources - Documents - Audit Checklists and, as with any Nadcap audit, you should download and review them in detail in advance of the actual Nadcap audit as part of your pre-audit preparation.



Additional information on the checklist requirements, question intent, acceptable objective evidence, examples of NCRs and helpful hints are included in the audit handbooks that are also available in eAuditNet in the *Public Documents* area.

### Top Nonconformances in Welding Audits

In common with many other Nadcap Task Groups, the Welding Task Group analyzes and publishes common nonconformances identified during Nadcap audits on a regular basis. The intent is to help suppliers avoid some common pitfalls and strengthen their internal process control.

To that end, as well as the common nonconformances, the Task Groups often also provided guidance and further information about each nonconformance. Articles in this newsletter are written with the same goal in mind.

The Welding Task Group most recently published an updated document in February 2016. The most recent guidance released by the Nadcap Welding Task Group is below.

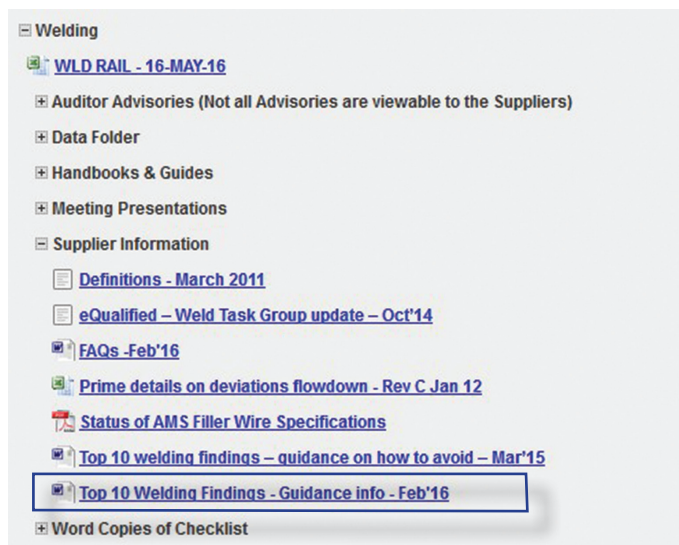
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Nadcap: 25 Years of Excellence

## NADCAP WELDING AUDIT INSIGHTS

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The document is also posted in eAuditNet under Resources - Documents - Public Documents - Welding - Supplier Information. Similar documents for other Task Groups are posted in Public Documents. It is strongly recommended that you review the relevant files to gain insights that will assist in Nadcap audit preparation and success.

### Nadcap Welding Audit Insights

The following checklist questions are the most common that NCRs are written against. Additional information on the checklist requirement including acceptable objective evidence is included in the audit handbooks that are available in eAuditNet under Public Documents.

1) Is there a documented procedure that controls electrodes?

This is a new checklist requirement in AC7110/5 Rev H paragraph 5.3.

Explanation: While control of consumable fillers has been in place in the checklists for numerous years, the control of electrodes has not. Auditors were witnessing

issues where electrodes were not under control, for example not purchasing to a specification, not ensuring the electrodes were receipt inspected, cutting of electrodes leading to loss of identification.

Examples of findings:

- No Procedure in place that defines how electrodes are to be purchased, inspected and identification maintained.
- Procedure has been written but electrodes are not being controlled per the procedure requirements.
- Electrodes are required to meet a defined specification, but this not specified on the purchase order.
- The incoming certification of the electrodes does not certify the electrodes to the requirements defined on the Purchase Order.

Helpful Hints:

- This is a new checklist requirement that many Suppliers have not incorporated into their system. Suppliers must review new checklist revisions and implement changes into their system.
- Understand the requirement. Don't assume you already have the item under control. Many Suppliers incorrectly assume that this applies to consumables, when in fact it applies to non-consumable electrodes as well.
- Review Purchase orders, receipt documentation and electrode traceability to ensure it meets your procedure and any specifications that are flowed by contract.

2) Are pre-weld preparations performed as described in documented procedures and in accordance with customer requirements?

This is a compliance question and is in paragraphs 11, 12 and 13 of the weld process checklists.

Explanation: Written instructions may be required by the customer(s), including joint preparation and cleaning. The weld source must adequately define the



steps and sequence of steps to be taken by the welder in preparing and cleaning the joint, and maintaining cleanliness after cleaning prior to welding.

Examples of findings:

- Instructions did not define the joint preparation (e.g. hand benching + solvent wipe or hand grinding of a V groove bevel).
- Welder was doing the 'proper' preparation, but the instructions were not defined.
- Welder was not working to defined preparation requirements.
- Cleaning not addressed either procedurally or within the job documentation.
- Parts were cleaned and then subsequently handled that allowed re-contamination to occur (e.g. dirty hands, contaminated boxes).
- Instruction defined to use a particular solvent and a different one was used.

Helpful Hints:

- In a controlled document, specify requirements for material preparation as applicable to welding, including cleaning, hand benching, hand grinding, handling between cleaning and welding etc.
- Ensure cleaning is addressed procedurally and includes customer-specific requirements, if applicable.
- As part of audit preparation, a spot check of a few weld schedules/procedures is recommended.

3) Has the supplier demonstrated compliance to the welding schedule?

This is a compliance question and is in paragraphs 11, 12 and 13 of the weld process checklists.

Explanation: The supplier must demonstrate that the parameters/setting and weld tasks specified in the procedure are being done in accordance with the approved document. This question is only addressing compliance to the weld schedule in use, not compliance to the certification, approval or documentation

requirements.

Examples of findings:

- Supplier has an approved/certified weld schedule and it is in use at the workstation, but the welder is using parameters outside the allowable range.
- Weld operation is being performed differently than specified in the weld schedule (e.g. sequence of welding).

Helpful Hints:

- Ensure that welders/welding operators are working to the actual weld schedule/written instructions for any production job. Pay particular attention for compliance to weld current (for automatic welding), gas flows and travel speed.
- Ensure welders have not changed parameters to improve the weld without gaining the correct authorization.
- Ensure new schedules are reviewed correctly to avoid 'cut and paste' errors.
- Where parameter ranges are allowed via the qualification, use them – do not make the schedule too rigid.
- As part of audit preparation, a spot check of a few weld schedules/procedures is recommended.

4) Is equipment calibrated in accordance with established procedures?

This is a compliance question and is in paragraphs 11, 12 and 13 of the weld process checklists.

Explanation: Welding equipment requires periodic calibration to ensure repeatability of parameters. All equipment must be considered and addressed procedurally. It is recognized that some equipment may not require calibration, however this equipment should be identified that this is the case (e.g. a voltmeter used in

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manual welding may not require calibration, but it must be noted that the meter does not require calibration).

Example of findings:

- Flow meters that do not require calibration are not identified that calibration is not required.
- Turntables where speed is required are not included in calibration, or verified prior to use.
- Meters not calibrated in range of use.
- Procedures do not define the equipment that requires calibration.
- Equipment used that is out of calibration.
- New equipment not assessed and included in calibration re-call system.
- Equipment not included in calibration re-call system.
- No traceability between equipment and calibration report.

Helpful Hints:

- As part of audit preparation, spot check equipment calibration (e.g. is it calibrated and is it in date).
- Define how calibration is verified procedurally.
- Welding speed may be verified prior to use by using distance and time method.
- Verify Customer requirements and ensure these as well as Nadcap checklist items are met.

5) Is there a documented procedure to ensure cleaning tools, such as brushes, flap wheels, abrading tools etc. are marked with the material type they are used on in order to avoid cross contamination?

This is a new checklist requirement in AC7110/5 Rev H paragraph 7.1.3.

Explanation: In order to prevent cross contamination, cleaning tools are restricted to the material types they were first used on.

Example of findings:

- No documented procedure to define how the

Supplier will control cleaning tools to prevent cross contamination.

- System is not robust enough to prevent cleaning tools being used on more than one material type.
- Unidentified cleaning tools found in use and hence unable to prove which material types they can be used on.
- Cleaning tools made from materials that are prohibited by flowed specification. E.g. carbon steel brushes used on nickel.

Helpful Hints:

- This is a new checklist requirement that many Suppliers have not incorporated into their system. Suppliers must review new checklist revisions and implement changes into their system.
- Spot check weld areas. Ensure cleaning tools are marked with the materials they can be used on.
- There is guidance on material types in the handbook.

6) Do qualification documents include objective evidence that the welder(s) has satisfied the specified vision examination requirements?

This is a question in the weld / weld operator qualification checklist, AC7110/12 paragraph 3.3.

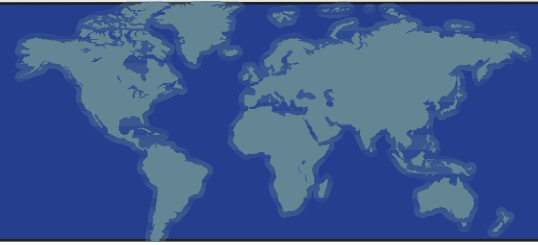
Explanation: To ensure that the correct vision standard has been utilized, that vision test certification has not expired and that records correctly document this.

Example of findings:

- Eyesight restrictions are not defined on qualification records (required by AWS D17.1).
- Eyesight tested to the wrong requirements.
- Eyesight tests missing some element(s) of the imposed specifications. E.g. far vision, color.
- Eyesight certification has expired.
- The qualification record is missing a restrictions box.

Helpful Hints:





- Review all eyesight requirements that are imposed. Ensure all imposed requirements are met.
- Where alternative tests are used, ensure that the specification allows alternatives, and if required that the person who has made the determination of equivalency is qualified to make this decision.
- As part of audit preparation, perform a spot check of eyesight records. Look for compliance to specification requirements, that the records are current, that restrictions are documented.
- Check welders /welding operators are using the required vision aids.

7) Is there documented evidence that all NDT and visual inspections (eg Visual, FPI, X-ray) have been performed to customer requirements?

This is a compliance question and is in paragraphs 11, 12 and 13 of the weld process checklists.

Explanation: To verify that all of the weld inspections have been performed to the correct method and acceptance criteria.

Example of findings:

- Inspection requirements not defined in Supplier's documentation.
- Wrong inspection criteria defined in Supplier's documentation.
- Inspection performed but no criteria (e.g. weld size flowed down). No evidence of any agreement between Customer and Supplier when job accepted.
- No record of inspection being performed.
- No record of inspection meeting the flowed requirements.

Helpful Hints:

- For each part ensure that the required inspection criteria are defined and results are recorded.
- As part of audit preparation, perform a spot check of part records. Look for compliance to specification requirements and that the records are complete.

8) Does the welding schedule address all customer requirements?

This is a compliance question and is in paragraphs 11, 12 and 13 of the weld process checklists.

Explanation: A weld schedule must contain all parameters/settings required by the customer(s). The extent of parameter documentation required may vary by customer. Having the appropriate approvals is also required.

Examples of findings:

- Weld schedule missing required parameters, settings.
- Weld schedule had inadequate written instructions.

Helpful Hints:

- In a controlled document, specify all parameters/settings required by customer(s). It's usually best to have one weld schedule format that satisfies all requirements.
- Review weld schedule content as part of pre-audit preparation.
- If the Qualification allows a range to be used then add the range on the WPS.

9) Is there a documented procedure that defines the specification and certification requirements including receiving inspection verification responsibilities for the gas?

This is a question in the fusion weld and braze checklists, AC7110/5 and AC7110/1 at paragraph G.1.

Explanation: To ensure gas requirements are correctly defined thereby ensuring Customer specifications are met. Hence to ensure shield gas does not contaminate the weld / braze. Also for torch brazing to ensure that the fuel gas and

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## NADCAP WELDING AUDIT INSIGHTS

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oxygen are purchased consistently.

Example of findings:

- Procedure does not define the gas requirements (specification or purity).
- Procedure does not define the gas requirements that need to be defined in the Purchase Order.
- Procedure does not recognize unique Customer analysis / dew point requirements.
- Procedure does not define the certification requirements.
- Procedure does not define receipt inspection verification responsibility.

Helpful Hints:

- Review all Customer requirements for gas and ensure procedure is written to meet all requirements.
- Ensure procedure defines what certification is required.
- Ensure procedure defines who is responsible for the verification of receipt inspection and what actions are required of this person.

10) Can the cleanliness of filler material be demonstrated immediately prior to welding?

This is a checklist question in the filler supplement (which is used in several checklists for the control of filler material).

Explanation: To prevent the use of filler material which has been contaminated during manufacturing (i.e. residual oils) or during storage (i.e. dust, oils, corrosion), and to maintain cleanliness of fillers after cleaning.

Example of findings:

- Not cleaning wires or at least establishing cleanliness prior to use.
- Wires cleaned but not checked for level of contamination.
- Wires cleaned but then re-contaminated e.g placing

them on a dirty bench.

- Cleaning a bunch of wires together resulting in some individual wires not being cleaned.
- Failure to keep filler tip in shielded environment resulting in tip oxidation, and failure to remove this tip prior to subsequent welding.

Helpful Hints:

- As part of audit preparation, a spot check of how Operators are complying with the requirements is recommended.
- Define how cleanliness is verified procedurally.
- After wires are cleaned, ensure they are kept clean E.g. don't place them on a dirty bench.
- Verify Customer requirements and ensure these as well as Nadcap checklist items are met.

If you have any questions on this article or a Nadcap welding audit, please do not hesitate to contact any member of the Nadcap Welding department at [welding@p-r-i.org](mailto:welding@p-r-i.org) and we will be happy to help.



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## REVIEW OF NADCAP MARK OF CONFORMITY USAGE

Obtaining Nadcap accreditation is a remarkable achievement. Many companies, understandably, wish to promote their status to their customers specifically, and to the industry as a whole. One of the ways to do this is to utilize the Nadcap Mark of Conformity in your efforts.

The Nadcap Mark of Conformity is a version of the Nadcap logo that accredited companies are authorized to utilize in very specific ways, and it is important that this is done correctly.



Nadcap logo



Nadcap Mark of Conformity

The difference between the logo and the Mark of Conformity is that the latter includes the word *Accredited*. Proper use of the Mark of Conformity is described in s-frm-48, which is located on eAuditNet ([www.eAuditNet.com](http://www.eAuditNet.com)) under Resources - Documents - Procedures and Forms - Nadcap Controlled Forms - s forms. A summary of the appropriate way to use the Mark of Conformity is described below but please refer to s-frm-48 on eAuditNet for full details.

One of the most important points about using the Mark of Conformity correctly is that you must ensure that the commodity/commodities for which your company is accredited are detailed as well. The Mark of Conformity should not appear alone. This enables anyone who sees the Mark of Conformity to understand your accredited status at a glance and avoids confusion.



Incorrect



Nondestructive Testing  
Welding

Correct

As explained in s-frm-48, it is the company's responsibility to ensure that "no confusion arises about the scope of accreditation". Omitting the commodity/commodities for which the company holds accreditation is the most common mistake made by companies using the Mark of Conformity.

When a Nadcap accreditation is issued, camera-ready artwork and/or electronic files are also sent. Other electronic formats are available upon request.

In terms of application of the Mark of Conformity, it may be used in many ways. s-frm-48 refers to company letterhead, fax cover sheets, business cards and "other business stationery", as well as website, flyers, mailings, paid advertisements in magazines and trade publications, company promotional materials and company souvenirs. This is a very broad list and offers a lot of opportunity to promote your Nadcap status.

PRI has received queries in the past about putting the Mark of Conformity on company vehicles, clothing, trade show booths and flags, among others.

As long as the Mark of Conformity is being applied in compliance with s-frm-48, these are all acceptable uses.

Another key point to be aware of is that the Mark of Conformity is not transferrable between facilities or locations. This means that companies with multiple facilities or locations must indicate which facility or location is accredited.

Utilizing the Mark of Conformity can be invaluable in ensuring that the hard work of you and your colleagues is noted by your customers and the industry at large.

If you have any questions about obtaining or using the Mark of Conformity, please do not hesitate to contact your Commodity Service Representative (CSR). The list of contacts is available on eAuditNet under *Contact Us*.

## NADCAP NEWSLETTER

Nadcap: 25 Years of Excellence

# HOW TO USE THE QUALIFIED MANUFACTURERS LIST

All companies in possession of a valid, current Nadcap accreditation are featured on the online Qualified Manufacturers List (QML) on eAuditNet at [www.eAuditNet.com](http://www.eAuditNet.com).

The QML serves a number of functions. For companies with Nadcap accreditation, it provides a reliable, independent source that they can direct their customers to in order to verify their Nadcap status, or scope of accreditation. For those looking to source suppliers with confidence, the QML acts as a searchable database, updated in real time as accreditations are granted and expire. This enables users to find Nadcap accredited companies in a convenient location, with the proven capability to do the work required.

Access to the QML requires a one-time registration on the eAuditNet website, but there is no associated cost, and nor is there a fee to be registered on, or to access, the database.

Once you have logged into eAuditNet, the QML can be accessed via the *Resources* menu.

### Resources ▾

#### Documents

#### Aerospace QML

This takes you to the database search engine which, based on the criteria you select, will return a list of Nadcap accredited companies that meet those requirements. The criteria available are:

1. Supplier name - if you want to check the status of a specific company
2. Country - if the supplier location is a factor in the procurement process, or to see how many other companies in your locale hold the same status as your company
3. State (for the USA and Canada)
4. Commodity or commodities in which Nadcap accreditation has been granted - more than one can be selected at a time

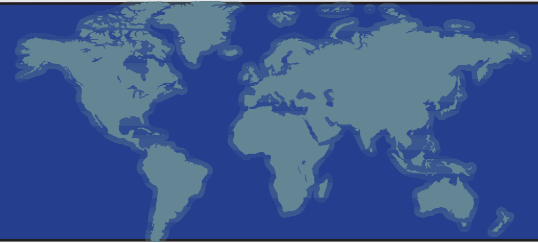
The screenshot shows the 'Aerospace QML Search' interface. It includes a search bar for 'Supplier Name' (1), a 'Country' dropdown (2), a 'State/Province' dropdown (3), and an 'Audit Program' section with radio buttons for 'Nadcap' and 'SubscriberAccred' (4). Below this is a 'Commodities' section with a grid of checkboxes for various manufacturing processes like 'Aerospace Quality Systems', 'Chemical Processing', 'Coatings', etc. (5). At the bottom, there are search filters for 'Search only active suppliers' and a date range selector for 'expiring on or after' and 'and on or before'.

5. Whether the accreditation is currently live (active) or historical. If you want to look at historical accreditations, you can select a date range to search within.

In addition, if you want a more in depth search, use the *Refine Search* option to search by scope, sub-scope, method or specification by clicking on a "+" sign.

### Refine Search Based on Scope (click to expand/collapse)

- + Aerospace Quality Systems
- + Chemical Processing
- + Coatings
- + Composites
- + Conventional Machining as a Special Process
- + Deicing
- + Distributors
- + Elastomer Seals



This gives you the option to search by specific sub-scopes. This is useful if you want to look for suppliers holding Nadcap accreditation not just for welding but, for example, for foil spot welding and so on. The *Refine Search* option allows you to search for Nadcap accredited suppliers by commodity, scope, sub-scope, method or specification.

AC7110/4 Rev H - Nadcap Audit Criteria for Resistance Welding (Spot, Seam, Projection)

- Baseline (All audits)
- Projection Welding – sheet (identify if this process is used)
- Seam Welding – sheet (identify if this process is used)
- Seam Welding –foil (identify if this process is used)
- Spot Welding – foil (identify if this process is used)
- Spot Welding – sheet (identify if this process is used)
- Supplement A – Aluminum / Magnesium (Additional requirements)
- Supplement B – Shear Testing (Additional requirements)
- Supplement C – GTA Tack Welding (Additional requirements)
- Supplement D – Filler Materials (Additional requirements)
- Supplement E – Stress Relieve (Additional requirements)
- Supplement F – Metallographic Evaluation of Resistance Welds (Qualification and / or Process Control) (Additional requirements)

If relevant, you can also search by compliance to unique customer requirements via the supplemental audit criteria listed under *Refine Search*.

AC7110/3S Rev D - Nadcap Supplemental Audit Criteria for Electron Beam Welding

- U0 User Unknown
- U00 None
- U1 Honeywell
- U10 GE Aviation
- U11 The Boeing Company
- U15 BAE Systems Military Air and Information
- U20 GKN Aerospace – Sweden
- U3 Rolls Royce Plc
- U5 Eurocopter
- U7 MTU
- U8 Airbus
- U9 Hawker Beechcraft

Once you are satisfied with your search criteria, click *Search*, or to start again, click *Reset*.



# NADCAP NEWSLETTER

Nadcap: 25 Years of Excellence

## HOW TO USE THE QUALIFIED MANUFACTURERS LIST

Continued from previous page

After clicking *Search*, the database will return the results to you in the format below. For demonstration purposes, test data is used in order that it does not become dated or misrepresentative.

The search criteria you used is displayed at the top (1), with accreditations granted merit (extended accreditation duration based on audit performance) highlighted in a dark colour (2). Accreditations without merit are not highlighted (3). For more information, you can click on either the company name (4) or commodity link (5).

Clicking on the *Excel* icon (6) will download the results to your computer where they can be saved or printed. In this case, with only two results, that may not be necessary, but depending on the search criteria, there may be hundreds or potentially thousands of results and the ability to view them in a format that allows you to work with the data can be invaluable.

**Aerospace QML Search Results**

Supplier name: Test Supplier Co. Active Suppliers: True Audit Program: Nadcap Sort By: Company Name **1**

The location identified below reflects the Supplier's current location and may not reflect the accredited address if the supplier has moved. The accredited location may be found by clicking on the Supplier's name or commodity.

Merit Indicator **2**  
commodity

One item found.

Supplier	City	State	Country	AQS	CMSP	COMP	CP	CT	ETG	FLU	HT	MI	MTL	NDT	NM	NMMM	NMMT	SE	SEAL	SLT	WLD	
<b>Test Supplier Co.</b> <b>4</b>	Warrendale	Pennsylvania	United States			<b>2</b>	<b>CP</b>															<b>3</b> <b>WLD</b> <b>5</b>

Microsoft Excel **6**

[How to download results](#)

If you click on the company name (4) or commodity link (5), you will be able to view the details of the Nadcap accreditation(s) held by the company. Choosing the *All Certs* tab (7) will display the company's Nadcap certificate history for all commodities, including current and expired accreditations. To view the current scope of accreditation held by the company, click *Show Scopes* (8).

**Aerospace Supplier Details**

Search Results **All Certs** **7**

Supplier name: Test Supplier Co. Active Suppliers: True Audit Program: Nadcap

Test Supplier Co., tSuite1PRI 161 Thorn Hill Rd, Warrendale, Pennsylvania15086, United States  
Phone: 724-772-4021, Fax: 724-772-1699  
Restriction: This supplier only maintains quality system approval to ISO9001:2000 (no aerospace quality system is maintained) and is only Nadcap approved to do work for Rolls-Royce plc and Rolls-Royce Deutschland

The location reflects the Supplier's current location and may not reflect the accredited address if the supplier has moved. The accredited locations are displayed with the accreditation below.

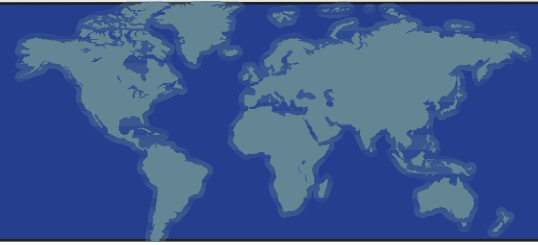
[Show all scopes](#)

CP (Chemical Processing)

Issue Date	Expiry Date
Test Supplier Co., tSuite1PRI 161 Thorn Hill Rd, Warrendale, Pennsylvania15086, United States 17-Nov-15	31-Jul-17

Show scopes **8** Supplier has merit for above audit





## NADCAP SUPPLIER SURVEY RESULTS

On a biennial basis, the Nadcap Supplier Support Committee (SSC) conducts a survey of the global supplier base. This survey has been issued every two years since 2003, and was most recently launched in 2015.

The intent of the survey is to gather information to improve the system and further support Supplier efforts for the benefit of all. Survey responses are used to help to identify the strengths of the program as well as target efforts to improve any weak points.

The survey was available in multiple languages to encourage international participation and benefited from the highest number of responses ever: 3,200 individual representatives from Supplier companies gave their input.

At the Nadcap meeting in June 2016 in London, UK, the results of the survey were presented, but, for those who were unable to attend, the highlights are detailed below.

With regard to Nadcap accreditation:

- 92.8% of the respondents stated that accreditation added value for their companies
- 87.5% agreed that quality had improved at their companies
- 80.7% believed that holding Nadcap accreditation has improved their customers' satisfaction with their companies
- 74.6% thought that being Nadcap accredited had helped them win new customers or projects
- 68.4% stated that Nadcap had helped improve their process efficiency
- 62.5% believed that Nadcap had contributed towards increased revenue growth

Dale Harmon of Cincinnati Thermal Spray, SSC Chairperson, explains why this is such an important activity: "For over ten years now, the SSC has worked diligently to ensure that the Supplier voice is heard within the Nadcap program, in a number of ways. The Survey is one of the most valuable, because it enables us to understand the experiences of a broad cross-section of the Nadcap Supplier community, giving us insights that we would not otherwise have access to."

Lei Bao of NCS Testing Technology Co., Ltd. is the SSC Asian representative and led the 2015 Supplier Survey team. He is delighted with the response rate: "It was my privilege to lead such an enthusiastic team and I am very happy that this survey received the highest ever number of responses. Thank you to everyone who took the time to share their feedback."

Finally, Joe Pinto, Executive Vice President and Chief Operating Officer for the Performance Review Institute, which administers Nadcap added: "I have long been an advocate of the idea that Nadcap is a program as much for the Suppliers as it is for the Subscribers. Every time Suppliers utilize the opportunities open to them to participate in Nadcap, we all take a step closer to this vision. I would like to add my thanks to the 3,200 individuals who took part in the survey. Your contribution does make a difference."

Work is now underway to analyze the responses in more detail and identify appropriate actions to support the Supplier base moving forward. Arno Toelkes of Euro-Composites SA, the European representative on the SSC Leadership Team, is leading the effort to analyze the 2015 Supplier Survey results.

If you are interested in participating in this important activity, please contact [NadcapSSC@p-r-i.org](mailto:NadcapSSC@p-r-i.org)

## NADCAP NEWS

*Nadcap: 25 Years of Excellence*

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