



Nadcap Asia Symposium 2011

*Nigel Cook
PRI Staff Engineer
Oct - Nov, 2011*



Agenda

- **Nadcap Chemical Process Task Group**
- *Nadcap Audit Preparation*
- *The Nadcap Audit*
- *Top NCRs and NCR response*
- *Web Tools & Additional Information*
- *Checklist Review*



The Nadcap CP Task Group

CP Task Group

Chair

Vice Chair

Secretary

CP Task Group Representatives
(Subscribers and Suppliers)



PRI CP Staff

Headquarters – Warrendale, PA, USA

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PRI CP Staff

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PRI CP Staff (cont.)

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Key CP Task Group Representatives

Chairman – Jerry Satchwell - jerry.satchwell@rolls-royce.com

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Vice Chair – Karyn Deming - karyn.deming@goodrich.com

Steering Committee:

Susan Lewis – Lockheed Martin

Jim Chan – Honeywell

Dave Michaud - Fountain Plating

Mike Graham – PRI Staff

Nadcap Subscribers

- Heroux Devtek Inc.
- Triumph Aerospace
- Bombardier
- Hamilton Sundstrand
- Rolls-Royce plc
- Air Force, WPAFB
- Pratt & Whitney
- Hawker Beechcraft
- BAE Systems
- Honeywell Aerospace
- Rockwell Collins
- The Boeing Company
- Spirit AeroSystems
- Rolls-Royce Corporation
- AVIO S.p.A
- Sikorsky Aircraft
- EADS CASA
- GE Aviation
- Alenia Aeronautica SpA
- Ball Aerospace & Technology Corp.
- BAE Systems – MAS
- Lockheed Martin
- Eurocopter
- EADS Defence & Security
- Raytheon Company
- AIRBUS
- SAFRAN Group
- EADS Astrium
- Cessna Aircraft Company
- Northrop Grumman Corporation
- Bell Helicopter
- Volvo Aero Corp.
- Goodrich Corporation



CP Task Group

CP Task Group is currently made up of 34 Subscribers and 31 Suppliers that participate in the Task Group meetings.



CP Task Group - Subscribers

Heroux Devtek Inc., Triumph Aerospace
Bombardier, Hamilton Sundstrand
Rolls-Royce plc, Air Force, WPAFB
Pratt & Whitney, Hawker Beechcraft, BAE
Systems, Honeywell Aerospace, Parker
Aerospace Group, Rockwell Collins, General
Dynamics, The Boeing Company, Spirit
AeroSystems, Liebherr-Aerospace SAS, Rolls-
Royce Corporation, AVIO S.p.A, Sikorsky
Aircraft, EADS CASA, GE Aviation, Alenia
Aeronautica SpA, GSA, Ball Aerospace, BAE
Systems – MAS, Lockheed Martin, Eurocopter,
EADS, Raytheon Company, AIRBUS, SONACA
Thales, SAFRAN Group, EADS Astrium, Cessna
Aircraft Company, Northrop Grumman
Corporation, Bell Helicopter, Volvo Aero Corp.,
Goodrich Corporation



Nadcap Task Group Meetings

The CP Task Group schedules three 'face to face' meetings during the year.



- Address issues relating to Nadcap CP
 - Checklists & Procedures, Consistency, Auditors, Metrics, Special Projects
- Location varies (refer to www.pri-network.com/nadcap for details on meeting locations)
 - US – Pittsburgh – Auditor Training
 - Europe
 - Asia



Nadcap – Accreditation

- The Nadcap CP Task Group (established 1990) is responsible for the operation of the Chemical Process accreditation program and currently utilize the following Nadcap CP checklists:



Chemical Process Checklists

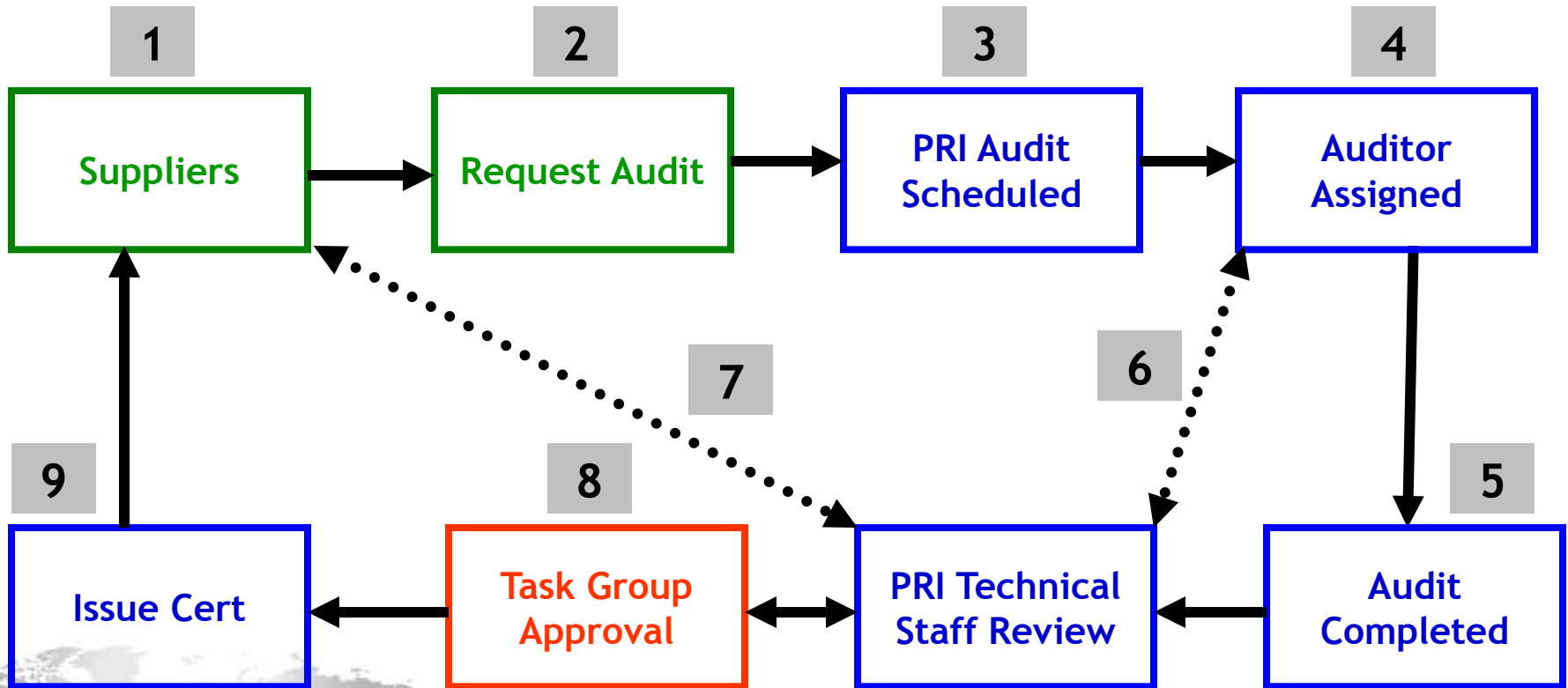
- AC7108 – General Process Checklist
- AC7108/1 – Paint
- AC7108/2 – Etch in Support of NDT
- AC7108/3 – Preparation for Metal Bond
- AC7108/4 – Sub-Contract Laboratories
- AC7108/5 – Chemical Milling
- AC7108/6 – Cleanliness Verification
- AC7108/7 – Vacuum Cadmium (& Aluminium IVD)



Nadcap – Accreditation (cont.)

- The previous mentioned checklists contain “Compliance Assessment Guidance” where clarification is necessary to confirm the requirement of the Task Group
- Is there documentation which provides for tracking and accountability of all test pieces currently in work (processing and testing)?
- *Compliance Assessment Guidance: A router should be with every test piece describing the process and all of the variables to make sure that it is representative of the part.*

Nadcap eAuditNet Process



Satellite Facility Criteria



- Facility is within 25 miles/40 Kilometers radius distance from the main facility
- Facility uses the same Quality Manual and Procedures as the main facility
- The Quality Manager (day-to-day operational control) is the same as the main facility
- The satellite facility has an on site individual who is part of the Quality Function and reports directly to the Quality Manager
- The facility is owned by the same company



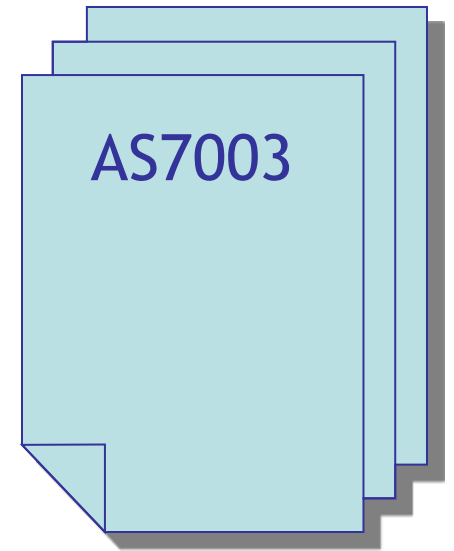
Operational Documents

- NIP – Nadcap Internal Procedure
 - Details specific procedures by which PRI/Nadcap Staff operates.
- NTGOP – Nadcap Task Group Operating Procedure
 - Defines the scope and general operating procedure for each specific Nadcap commodity program.
- NOP – Nadcap Operating Procedure
 - Documents detailing the specific procedures by which Nadcap operates.

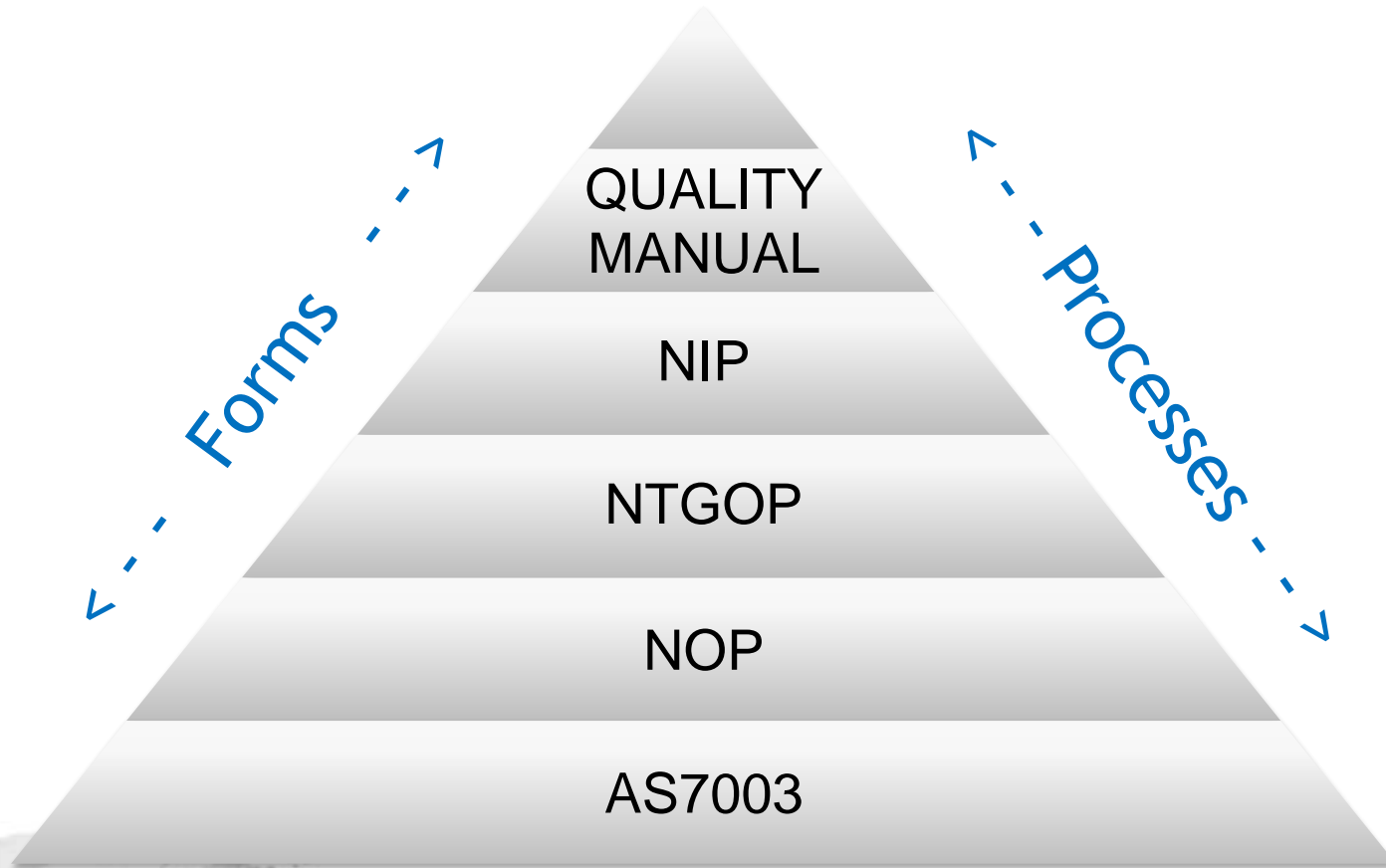
Operational Documents

Additional

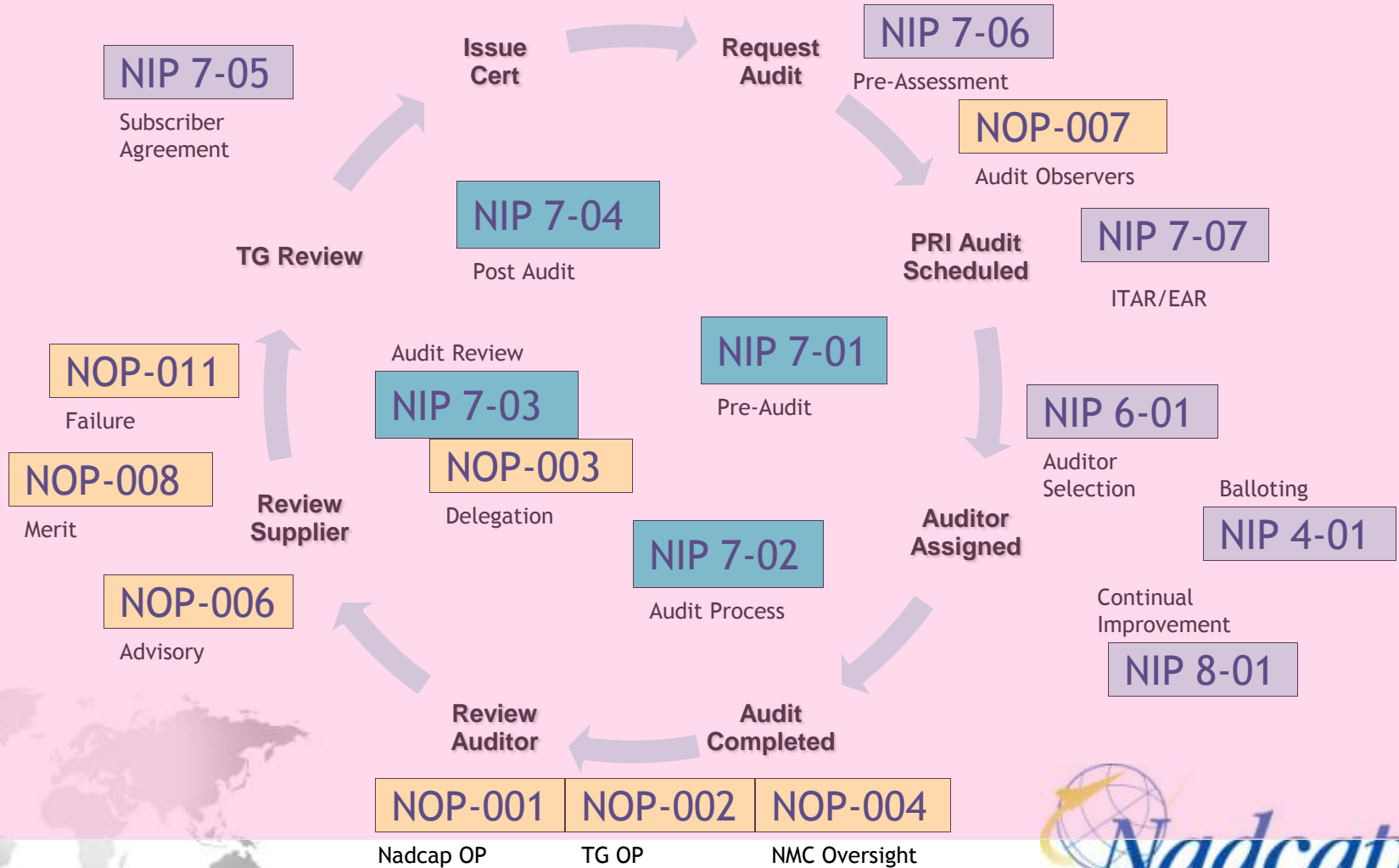
- Quality Manual – Performance Review Institute (PRI) Quality Process
 - PRI Quality System requirements
- AS7003 – Nadcap Program Requirements
 - Aerospace Standard which documents the requirements for implementing Nadcap industry consensus-based accreditation programs



Procedural Hierarchy



Procedure Map Summary



Notable Procedures

- NOP 002 General Task Group Operating Procedure
- NOP 008 Supplier Merit Program
- NOP 011 Audit Failure Process
- NTGOP 001 Nadcap Task Group Operating Procedure-Appendix VIII
Additional Requirements for the CP Task Group
- NIP 4-01 Document Control Procedure
- NIP 6-01 Auditor Selection, Approval and Training-Appendix
CP– Guidelines for Selection of Auditors of CP Auditors

These are found at www.eAuditNet.com

Resources > Documents > Nadcap Procedures



Checkpoint

Any Questions



Agenda

- *Nadcap CP Task Group*
- **Preparing for the Audit**
- *The Nadcap audit*
- *Top NCRs and NCR response*
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AC7108 para. 2.1

- 2.1.1 - Prior to the Audit

The supplier **must complete a self-audit** using AC7108 and relevant slash sheets in preparation for the Nadcap audit.



All internally identified non-conformances should be corrected prior to the actual audit.



Timeline – Prior to Initial Audit

- Six months prior to your scheduled audit:
 - Download the required checklists
 - Consider including the checklists in the documentation control system as you would for customer specifications. These are after all requirements
 - Create an audit plan
 - Select and train auditors on the audit checklist and reporting



Timeline – Prior to Initial Audit

- Four months prior to your Nadcap audit:
 - Conduct audits and identify NCRs
 - Do a thorough RCCA analysis
 - Create a plan for corrective actions, ensure corrective actions are flowed out to all areas
- One month prior to your Nadcap audit
 - Conduct a follow-up audit of NCRs and corrective actions



Six months prior to your scheduled audit

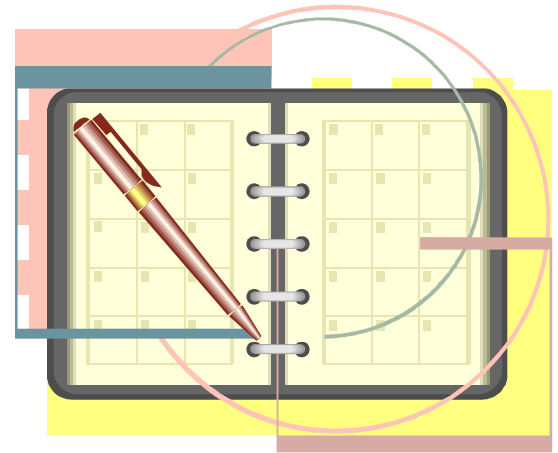
- Download the required checklists.
 - AC7108 – Chemical processing
 - AC7108/1 – Paint & Dry Film Coatings
 - AC7108/2 – Etch for NDT
 - AC7108/3 – Preparation for Metal Bond
 - AC7108/4 – Sub-Contract Laboratories
 - AC7108/5 – Chemical Milling
 - AC7108/6 – Cleanliness Verification
 - AC7108/7 – Vacuum Cadmium (& Aluminium IVD)



Six months prior to your scheduled audit

Create an audit plan

- It is advisable to split the audits to reduce the workload.
- The audit should be done by somebody who is knowledgeable of that process but not directly involved in it.
- Include job (compliance) audits
- Involve everybody



Six months prior to your scheduled audit

- Select and train auditors on the audit checklist requirements and reporting.



Timeline – Prior to Initial Audit

Four months prior to your Nadcap audit

- Conduct audits and identify NCRs
- Do a thorough RCCA analysis
- Create a plan for corrective actions, ensure corrective actions are flowed out to all areas



Four months prior to your scheduled audit

Conduct audits and identify NCRs

- Review audit checklists and ensure they are performed objectively against each checklist item. For example, record where the evidence can be found against the checklist question (examples on the next slides)
 - Verbal verification (do not accept)
 - Assumptions (do not make)
 - Should there be an N/A on the checklist question or could the answer be No?
 - Obtain clarification / interpretation with the PRI Staff Engineer



Four months prior to your scheduled audit

Example: AC7108

- 3.6.1 Does the processor obtain through customer-provided information: part identification, material type and any other part specific information required for subsequent processing?
- YES NO NA
- *Compliance Assessment Guidance: NA applies only if the traveler states that this is the next operation and the work being performed is being bought off in the same traveler*
- *A yes answer would be a work instruction or a place on their traveler looking for information that is critical for their processing, e.g. hardness for steel materials, shot peened surfaces, alloy composition.*



Four months prior to your scheduled audit

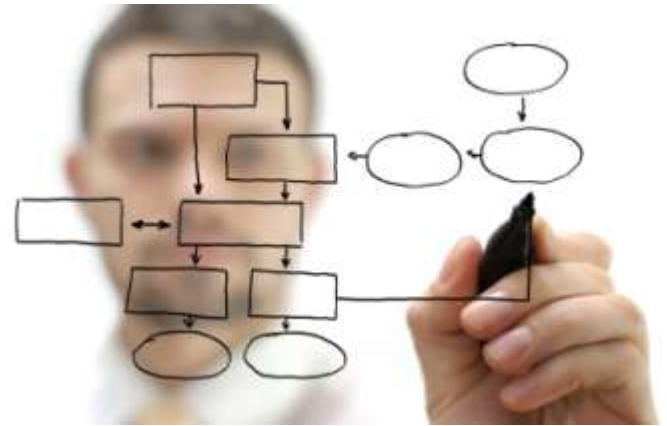
- Involve all personnel that could be questioned or witnessed during the audit
 - Nervous / Apprehensive
- Are actual practice and procedural requirements consistent?
- Assign NCRs to suitable people.
- 90 days prior to the Nadcap audit, review eAuditNet website to assure checklist is the latest revision.



Four months prior to your scheduled audit

Do a thorough RCCA analysis

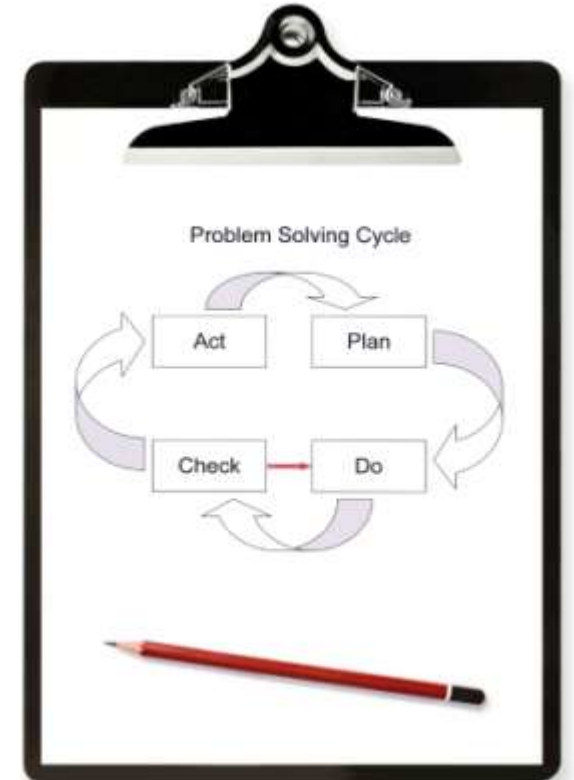
- Immediate corrective action for specific items identified
- Review other similar documentation and processes for further instances
E.g. incorrect revision of customer specification used for compliance
- Create a team to determine the root cause. Carry out "5-Why" analysis



Four months prior to your scheduled audit

Create a plan for corrective actions, ensure corrective actions are flowed out to all areas affected.

- External calibration house
- Internal calibration department
- Inspectors
- Maintenance
- Planners
- Purchasing
- Quality



Timeline – Prior to Initial Audit

One month prior to your Nadcap audit

- Conduct a follow-up audit of NCRs and actions
- Send documentation to auditor



One month prior to your scheduled audit

- Conduct a follow-up audit of NCRs and corrective actions
 - Review specific items identified and verify they have been corrected
 - Verify procedures/instructions are amended and relevant personnel trained
 - Any additional procedural changes made since
 - Are the requirements still satisfied
 - Are the requirements fully understood
 - Review new job packages to verify if they are correct

One month prior to your scheduled audit

The supplier should forward the following information as identified in AC7108 para 3.1.3, 30 days prior to the scheduled audit:

- 2.1.3.1 Original Self-Audit
The self-audit complete with procedure titles/procedure numbers for all documentation.
- 2.1.3.2 Travelers/Route Cards.
One sample traveler/route card for a process performed.
- 2.1.3.3 List of Prime Customers and prime processing specifications in the scope of the audit.
- 2.1.3.4 List of Supplier's Procedures
List of supplier's procedures (index/table of contents only) for processing, testing, inspection, etc.
- 2.1.3.5 Organization Chart



One month prior to your scheduled audit

- Documentation provided must be in English unless agreed between the auditor and the supplier. Note – responses to NCRs shall be in English
- All documentation will be destroyed or left with the supplier after the audit



Other Considerations

- Personnel availability
 - Able to assist when required
 - Vacation
 - Part time personnel
- Availability of Records – Calibration, personnel records, training, qualification and other documents
- Hardware availability for compliance



Prepare!

- Prepare, Prepare, Prepare!
- Attention to detail – The Nadcap audit is typically 3 to 5 days and is very thorough



- Good preparation leads to a successful audit



Checkpoint

Any Questions



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Export Control

- Certain documentation, platforms, components, drawings, etc may reference Export Control. This presentation does not intend to address Export Control other than identifying:
 - Suppliers are responsible for maintaining Export Control and notifying PRI if Export Controlled hardware is processed at the facility (during the scheduling of the audit)
 - Nadcap Internal Procedure (NIP) 7-07 addresses Export Control with materials and information
 - **ITAR/EAR and the Nadcap Audit** 2 hour webinar training is available from eQuaLearn

The Audit: Initial Meeting

Purpose

- To provide all participants with the opportunity to anticipate and prepare for obstacles, or situations, that might interrupt the audit
- Assess the supplier's readiness for the audit
- Communicate with senior representatives of the supplier who will not be actively involved with the audit, except for the daily briefing
- Review any safety/security issues



The Audit: Initial Meeting

- General introductions
- Confirm understanding of ITAR/EAR - auditor, data and reporting restrictions
- Clarify audit being performed
 - CP Scope
 - Customer base, Subscribers, approvals held
- Agenda for the audit
 - Availability of personnel – any personnel away from work
 - Personnel working hours
 - Availability of examinations

Initial Meeting (cont.)

- Compliance jobs – job / paper audits.
 - Not intended to be a nervous experience
 - Will speak with personnel during the compliance
 - Need to witness auxiliary processes that affect the CP process. e.g. abrasive blasting, de-embrittlement
 - Trainees (if used) will also be asked to perform certain functions during the compliance



Initial Meeting (cont.)

- Nonconformance Reports (NCRs)
 - NCR Classifications (Major and Minor)
 - NCRs accepted on site by the auditor (auditor discretion)
 - Supplier kept up to date on NCRs. Discussed at end of day
 - NCRs from previous audit. Objective evidence to show they are closed out
 - Verified during the audit



Initial Meeting (cont.)

- Miscellaneous
 - Procedural / personnel changes since the submittal of documentation to auditor
 - Proprietary / Export Controlled documentation
 - Lunch times
 - Language
 - Brief tour of the facility
 - Scope Verification



Checklist Completion

- The Nadcap audit is like no other
 - Auditor requires compliance procedurally and in practice to the checklist requirements:
 - Documentation to show procedural coverage
 - Witness the inspector / processor working in accordance with the procedure and demonstrates (verbally) a sound knowledge of the requirements
 - Lack of objective evidence may result in an Nonconformance
 - Clear communication is imperative

Daily Briefing

- Purpose is to allow the supplier time to listen to the progress summary of the audits:
 - NCRs
 - The supplier should be aware of NCRs or potential issues throughout the day
 - If compliance jobs are still being witnessed, auditor may not indicate an issue until the end (to determine if systemic)



The Daily Briefing

- Intent is to promote discussion, not to re-address topics previously discussed or debated items.
- Allows the supplier to address any items of concern or documentation retrieval to prevent issuance of a nonconformance
- Confirm the agenda for the following day



Compliance Jobs Task Group Expectation

- A minimum of 4 job audits with a minimum of 1 job audit for each main process within the scope of an audit
 - Anodizing
 - Conversion Coating.
 - Chemical Milling
 - Etching
 - Electroplating
 - Electropolishing
 - Electroless Plating.
 - Painting & Dry Film Lubricant.
 - Surface preparation for metal bond.
 - Vacuum Cadmium and Ion-Vapor Deposition of Aluminum.
 - Cleaning and Descaling as stand alone processes.
 - Passivation

Compliance Jobs

Task Group Expectation (cont.)

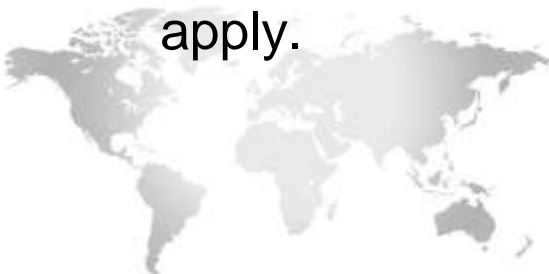
- The auditor is also required to look for jobs from different customers where applicable, e.g. an anodize job from Boeing, a plating job from Rolls-Royce
- ITAR/EAR & Proprietary Requirements



Compliance Jobs

Availability of Hardware

- Supplier must take steps to obtain subscriber hardware, if available, pull from stock
 - Do not borrow hardware unless approved by customer
 - Preferably from Nadcap Subscriber but other certified work may be acceptable.
 - Scrap parts should only be used as a last alternative
- Know the customer of the component being processed and the applicable specifications that apply.



Compliance Jobs (cont.)

- Personnel
 - Process Operators, Inspectors, etc., need to feel comfortable, prevents errors
 - Get all personnel involved in the audit process (prior to Nadcap audit)
 - Better understanding and appreciation
 - Conduct regular oversight and discussions. Have the President or Director of the company witness the people working

Compliance Jobs (cont.)

- Personnel
 - The auditor will explain the Process personally to the Process Personnel & Inspectors
 - Process Personnel & Inspector will be asked to process as they would normally, e.g. control checks first, then process job
 - The process should not be changed because the auditor is there, this may cause errors.



Compliance Jobs (cont.)

- Personnel
 - Processing Personnel & Inspectors SHOULD communicate with the auditor. Prevents nonconformances
 - Explain the process as it is being done, let the auditor see what is taking place
 - Verify the auditor wishes to see a particular aspect of the process or if acceptable to continue

Compliance Jobs (cont.)

- Personnel
 - If the processor/inspector requires clarification
 - Acceptable to review additional procedures
 - Inspector required to work alone, but may ask clarification with internal personnel (not with external consultant – consultant is typically not present to answer such clarifications)
 - If the processor/inspector has made a mistake they are expected to identify it.

Final Out Briefing

- Review all non-conformances / issues identified during the audit
 - Leave copy of NCR report – written or electronic
 - "0" NCRs requires feedback within 3 days from submittal of electronic audit report by the auditor



Final Out Briefing (cont.)

- Outline the process for addressing Non-conformances and utilizing eAuditNet
 - Initial response to findings is 21 days from submittal of electronic audit report by the auditor
 - Corrective action plan and objective evidence
 - For second, third and fourth (max) response cycles, 7 days is required
 - ‘Late’ days are accumulated when the response date is past due. Shall not exceed 30 cumulative late days for the audit report package
 - Late days affects the merit process (discussed later)

Final Out Briefing (cont.)

- Advise Supplier of RCCA Tutorial for corrective action help www.pri-network.org
- Review availability of key procedures on eAuditNet
 - > Resources > Documents > Nadcap Procedures
 - Audit Process NIP 7-02
 - Audit Report Processing NIP 7-03
 - Merit Process NOP-008
 - Audit Failure NOP-011
 - Accreditation Process NOP-001
- Supplier Feedback Form

Checkpoint

Any Questions



Checkpoint

Any Questions



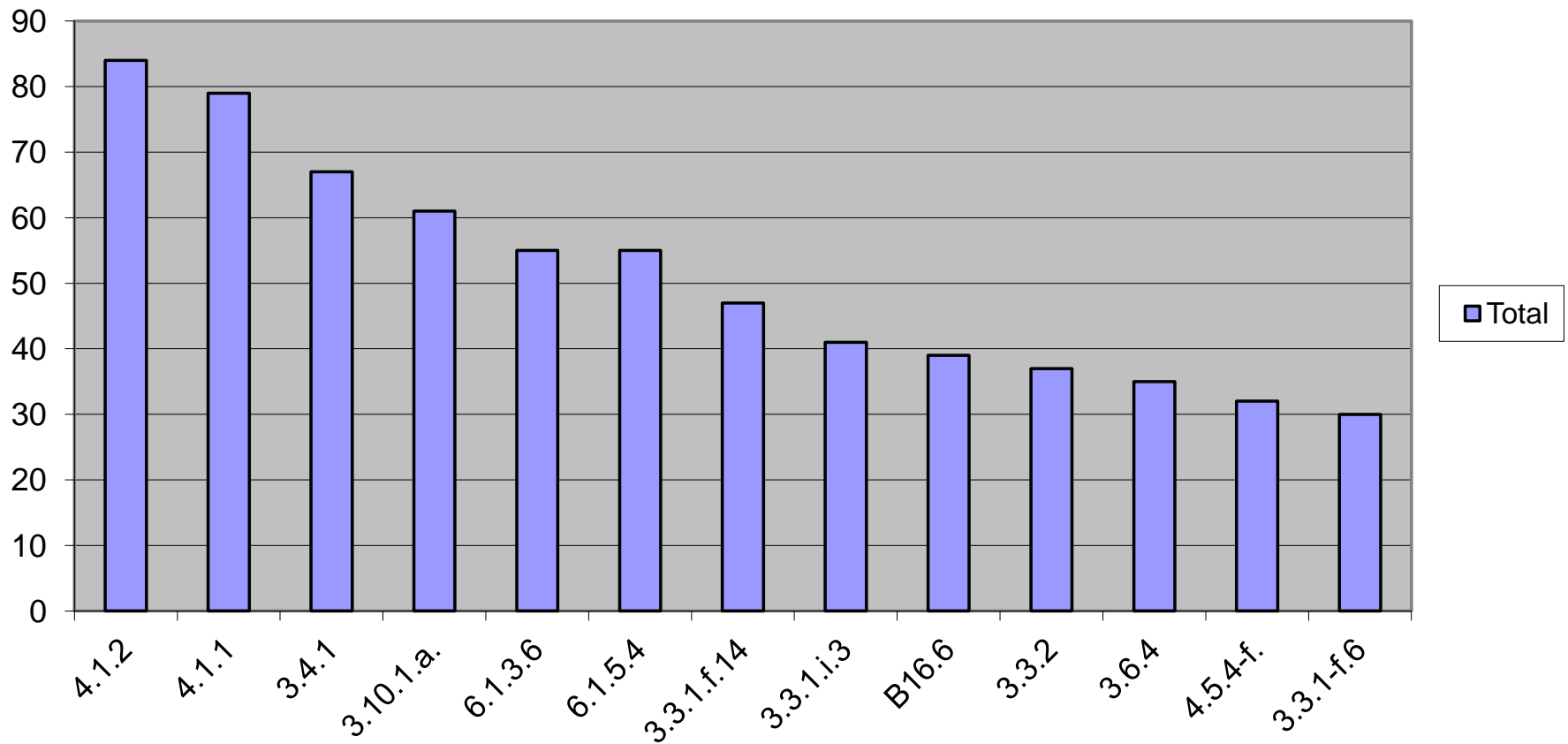
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- **Top NCRs and NCR response**

- *Web Tools & Additional Information*

AC7108

AC7108 Top NCR Paragraphs.



Top Finding 1

4.1.2:

- Is periodic and lot acceptance testing as shown in the test matrix compliance with customer and/or specification requirements, including Nadcap Table 1?
- This is typically due to a weak contract review and flowdown process.



Top Finding 2

4.1.1:

- Does a test matrix consistent with the con of Appendix C define all periodic testing a lot acceptance testing requirements for ea process?
- The Test Matrix is a good tool to ensure flowdown of testing requirements. Failure to have, or use, the Test Matrix typically leads to NCRs on testing



Top Finding 2 (cont.)

Internal Procedure Process	Specification	Lot Testing				Periodic Testing				
		Method	Number of Test Pieces	Test Piece Dimensions	Test Piece Material	Method	Frequency	Number of Test Pieces	Test Piece Dimensions	Test Piece Material
XXX.10.12 Chromic Acid Anodise	AMS-A-8625 Type 1 Class 1	Visual	MIL-STD-105 XXX.10.12	Parts	Parts	Coating Weight ASTM B 137 XXX.03.05	Monthly	3	3x3x0.032	2024-T3
		Thickness	MIL-STD-105 XXX.10.12	Parts	Parts	Corrosion Resistance ASTM B117 XXX.03.01	Monthly	5	3x10x0.032	2024-T3
XXX.10.15 Conversion Coat	AMS-C-5541	Visual	MIL-STD-105 XXX.10.15	Parts	Parts	Corrosion Resistance ASTM B 117 XXX.03.01	Monthly	5	3x10x0.032	2024-T3
						Wet Tape FED-STD-141 Method 6301 XXX.03002	Monthly	2	3x10x0.032	2024-T3
	RPS436	Visual	100%	Parts	Parts	None Required				

Top Finding 3

3.4.1:

- Does a procedure define a system/requirements for process and quality planning which effectively ensures compliance with customer and/or specification requirements?
- Contract review and flowdown for processing instructions is also a common NCR



Top Finding 4

- 3.10.1 a.:
- Is there evidence of current calibration on all shop equipment used to set, control or monitor the control of a process?
- This is typically timers used for monitoring immersion times and paint mixing times and also the time axis of ramp rate controllers in anodize



Top Finding 5

- 6.1.3.6
- Processing (The continuous part after masking and racking.
Record steps e.g. degrease, deox, anodize....)
- This is typically incorrect tank temperatures (Monday morning) or incorrect immersion times.



Top Finding 6

- 3.3.1.f.14
- Does shop paper/traveler contain a step for each process performed with applicable internal process/or inspection procedure numbers including as applicable including: In-process and final tests and inspections, including disposition.
- This is typically due to shop papers not having a buy-off for each inspection step (e.g. Water break free, visual, thickness, adhesion)



Top Finding 6 - Contd

50	Non-etch alkaline degrease for 2-3 minutes. Cold water rinse. Water break free test, minimum 10 seconds - Pass <u>Yes</u> (If wbf fails then repeat this op up to 2 times)								®
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100	Visual check 100% of parts – anodising should be smooth and of a uniform grey colour.								®
110	Check thickness per WIxxxx, 1 position per item as per sampling plan XXX, and record all results in table below. Record verification results of gauge: Given Shim Thickness: <u>41µm</u> Measured Shim Thickness: <u>40µm</u>								®
120	Final Inspection. Pack & despatch per PI 999								©



Top Finding 7

- 3.3.1.i.3
-process parameters which are controlled by the operator are recorded for each lot of parts processed, including: temperature, time, voltage, current, as applicable. (AC7108 App D lists the parameters that must be recorded for each process)
- This is typically due to shop papers not defining the need to record these parameters



Top Finding 7

Op	Description	Tank	Start Time	Voltage/ Amperage	Stop Time	Stamp
50	Non-etch alkaline degrease for 2-3 minutes. Cold water rinse. Water break free test, minimum 10 seconds - Pass <u>Yes</u> (If wbf fails then repeat this op up to 3 times)					®
60	Deoxidise for 30-60 seconds.		<i>0 Sec</i>		<i>50 sec</i>	®
70	Cold water rinse for 1-2 minutes. Water break free test, minimum 10 seconds - Pass <u>Yes</u> (If wbf fails then repeat ops 50-70 once only)					®
80	Sulphuric Acid Anodise. Raise voltage at 3-5 volts every 10 seconds until required current for load is obtained, record amperage. Maintain at load current for 25 to 30 minutes.	<i>12</i>	<i>Ramp 0 V. 0 Sec. Load 0 Min</i>	<i>1135 A.</i>	<i>Ramp 32 V 100 Sec Load 28min</i>	®



Top Finding 8

- B16.6 – Coating Thickness Testing
- Is there a record of verification maintained, and are values within tolerance?
- Electronic thickness testers (e.g. Magnetic, Eddy Current) need to be verified prior to use due to the effect of substrate material and geometry. This verification, including its values, needs to be recorded and traceable to each lot/batch.



Top Finding 8 - Contd

Recorded directly onto the route card/traveller

110	<p>Check thickness per Wxxxx, 1 position per item as per sampling plan XXX, and record all results in table below. Record verification results of gauge: Given Shim Thickness: <u>41µm</u> Measured Shim Thickness: <u>40µm</u></p>					®
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Recorded onto a log traceable to the route card/traveller

Date	Job#	Substrate	Given Thickness of Standard	Measured Thickness of Standard	Accept Yes/No (See Note 1)	Sign or Stamp
11-Oct-11	12345	2024	15.1µm	15.2µm	YES	®



Responding to NCRs

Five questions that suppliers must answer in an NCR:

1. Immediate corrective action taken (containment actions)
2. Root cause of nonconformance
3. Impact of all identified causes
4. Action Taken to Prevent Recurrence
5. Effectivity Date

Immediate Corrective Action

What action was taken following the issue being discovered during the audit?

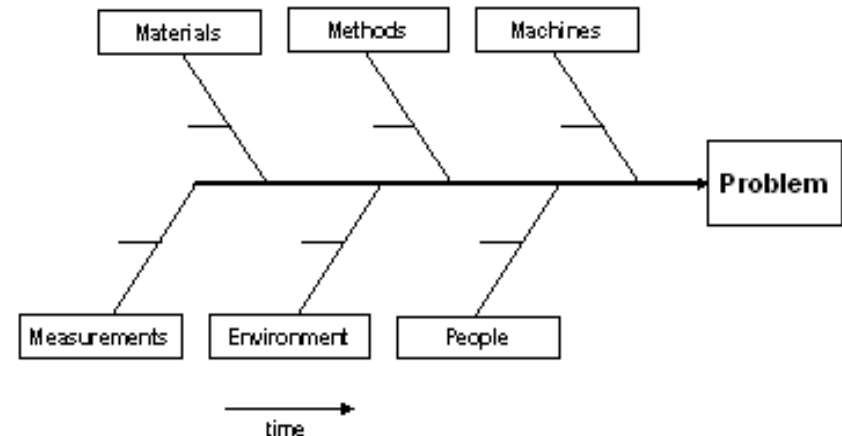
- Did you stop the problem from continuing?
 - Become compliant with the requirement
- Did you contain the problem found?
 - Were any other aspects (procedure, hardware, etc) affected by this NCR?



Root Cause

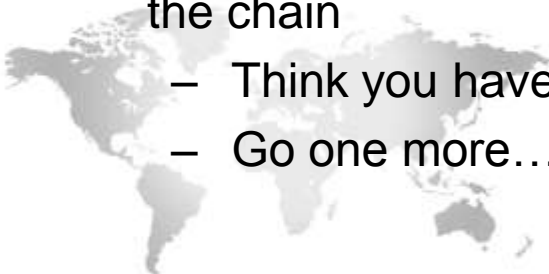
Why did this occur? 5 Whys, Fishbone

- Why was this not identified during contract review or during the pre-audit using the Nadcap checklists?
- How was the question answered and what objective evidence was reviewed to consider the item as compliant?
- Why did the engineer not identify this issue? What involvement do they have in the system?



The Root Cause is the last logical cause in the chain

- Think you have it?
- Go one more.....



Impact

What impact did the nonconformance actually have?

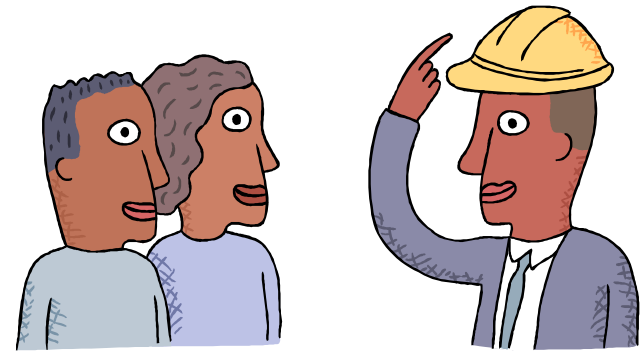
- Were parts or the integrity of the process affected in any way?
- Contacting of customer – Failing to comply with customer requirements may result in need to contact customer for additional investigation or corrective action
- Were parts shipped to customer?



Preventative Action

What is the long term action to prevent recurrence?

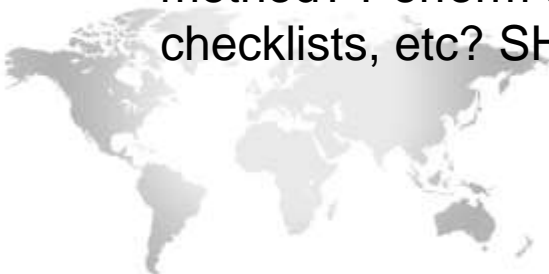
- Can only be addressed when the root cause is understood
- Do not rush, consider the effectiveness, feasibility, suitability to the company, and the company's budget



Objective Evidence

What information can you provide to demonstrate the RCCA process applied to the NCR?

- If a procedure changed, clearly specify what the change was and show evidence to the NDT Staff Engineer of the approved procedure (as applicable)
- Potential for Impact Hardware investigations. Provide the investigation report, include photographs
- Training/awareness of personnel. Provide evidence (sign off sheet)
- Change or create a procedure? Implement a new system or method? Perform training / awareness, propose audits, new checklists, etc? SHOW IT.



Example – The Non Conformance

- AC7108 3.3.1: Does shop paper/traveller, which accompanies each lot, contain as a minimum the following information.....i) specified process parameters which are controlled by the operator are recorded for each lot of parts processed, including: ...?
 - *Chromic Acid Anodise route card master 11231 no place for recording immersion time in the deox tank and it is not recorded for jobs audited.*
 - *Cadmium Plate route card master 10126 no place for recoding amperage and it is not recorded for jobs audited.*



How to respond to NCRs

- Immediate corrective action taken:
 - *Route card masters 11231 and 10126 amended to include prompts for recording of immersion time and amperage. See attached.*
 - *Other master route cards reviewed against AC7108 and App D to identify other missing parameters. Master route cards 11111, 22222 and 33333 also had items missing and have been amended.*



How to respond to NCRs

- Root Cause:
 - *Internal procedure, IP10.5, for creation and amendment of route cards did not clearly identify items to be recorded.*
 - *Document control procedure, IP8.3, appendix 2 did not include AC7108 as a document that will be reviewed and flowed down into internal instructions.*



How to respond to NCRs

- Impact to hardware
 - *No impact, the NCR concerns recording of certain process parameters only. Actual processing was compliant to customer requirements.*



How to respond to NCRs

- Action taken to prevent recurrence:
 - *Internal procedure, IP10.5, for creation and amendment of route cards has been amended to identify all process parameters to be recorded. IP10.5 also amended to reference AC7108 so that amendments to it will lead to review of IP10.5.*
 - *Document control procedure, IP8.3, appendix 2 has been amended to include AC7108 as a document that will be reviewed.*
 - *Planners trained on amended IP10.5. Training record attached.*
 - *Specification Review Personnel Trained on IP8.3. Training record attached.*



How to respond to NCRs (cont.)

- Objective evidence:
 - *Amended route cards 11231 & 10126*
 - *Internal procedure IP10.5 for creating route cards.*
 - *Training for planners on IP10.5*
 - *Document control procedure IP8.3*
 - *Training for specification review personnel on IP8.3*
- *Effectivity Date: 24-October 2011*



Final Points

DO NOT ask the auditor about how to respond to NCRs. The auditors job is to report the findings



Final Points



- Got a problem or do not understand how to address an NCR?
 - Refer to the tutorials provided underneath the NCR posting on the supplier discussion screen.
“Instructions on How to Respond to NCR”
 - Additionally, a Root Cause Corrective Action tutorial is available at :
<http://pri-network.org/resource/docs/1046/RCCANadcapStyle.pdf>

- Problems – Call the Staff Engineer

Checkpoint

Any Questions



Agenda

- *Nadcap CP Task Group*
- *Preparing for the Audit*
- *The Nadcap Audit*
- *Top NCRs and NCR response*
- **Web Tools & Additional Information**



- *Checklist Review*

Nadcap Meetings

- Nadcap has 3 meetings per year.
 - February
 - June/July
 - October – Auditor training is typically aligned with this meeting.
- Next Nadcap Meeting
 - February 20-23, 2012 San Diego, CA USA



Available Training

- Please visit www.pri-network.org for the following training material:
 - Prime Orientation and Tutorial
 - Supplier Orientation and Tutorial
 - Supplier Workshops
 - Nadcap Customer Support Initiative (NCSI)
 - Task Group Symposiums
 - Basic eAuditNet for Primes and Suppliers



PRI/eQuaLearn Trainings

eQuaLearn has two core tracks :

- General Quality understanding of principles, including:
 - Internal Auditing
 - Problem solving
 - PFMEA
 - Root Cause Corrective Action
 - Introduction to Aerospace Quality
 - Contract Review
 - SPC
 - AS9100 Rev C



PRI/eQuaLearn Program

eQuaLearn has two core tracks :

- General understanding of Nadcap and industry requirements
 - Nadcap Audit Preparations – NDT, Heat Treating, Chemical Processing, and Welding
 - Introduction to Pyrometry
 - Commodity specific trainings targeted at Process operator, process planner, and process owner of NDT, Heat Treating, Chemical Processing, and Welding processes.
- www.eQuaLearn.com
 - New website that contains details on eQuaLearn program



Agenda

- *Nadcap CP Task Group*
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- **Checklist Review**



Checklist Format

1. General Information
2. Supplier Information
3. General Chemical Process Quality System Requirements (Calibration, Training, Job Documentation, Planning, Purchasing etc)
4. Lot Testing, Periodic Testing & Solution Analysis.
5. Maintenance and Specific Processing Questions (Cleaning, Abrasive Blasting, Masking, Ovens, etc)
6. Job Audits
7. Appendices (Process Improvement, Test Methods, Test Matrix, Process Parameters to be Recorded, Buy-Off Steps, Solution Matrix)

Checklist Review



AC7108 Rev D



