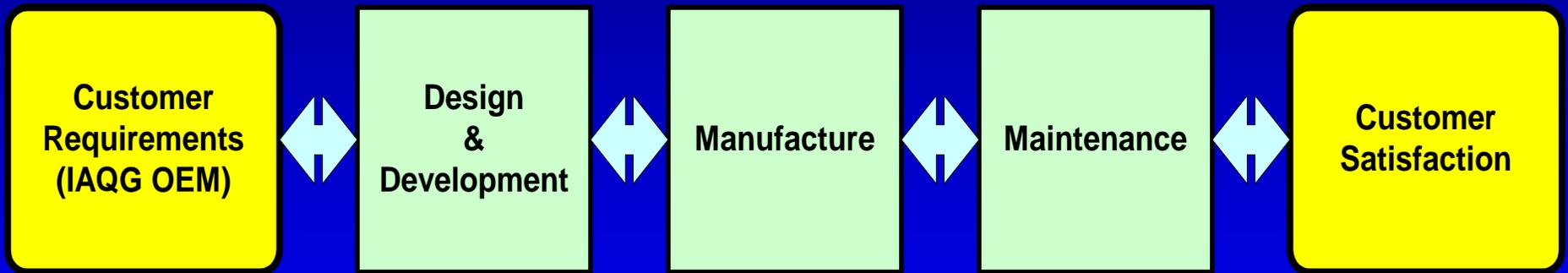


IAQG AS 9104 System Process Flowcharts

IAQG AS9104 Overview of Requirements

Value Stream



Voluntary Certification/Registration

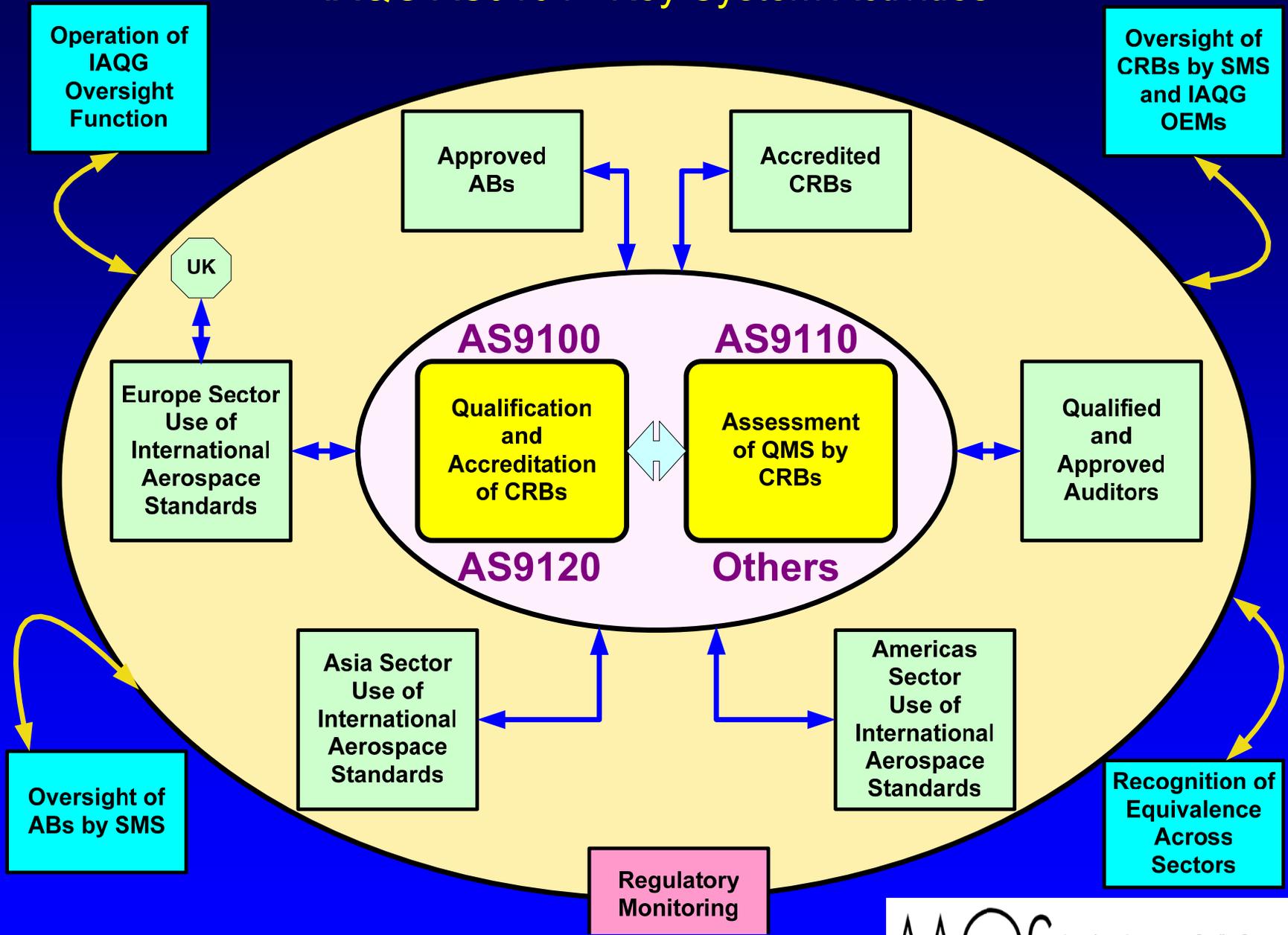
Harmonized Approach to the CRBs

IAQG AS9104 - Three Fundamental Requirements



Controlled Use of Assessment Results

IAQG AS9104 - Key System Activities



Scope – AS9104 Clause 1.

These requirements are applicable to IAQG Sector Schemes when making use of ABs, CRBs and their auditors, for the assessment and certification/registration of supplier quality systems in accordance with the requirements of AS9104.

The quality management system standard used by the CRB shall be 9100/9110/9120, as appropriate to the supplier's activities.

It shall be applied to the supplier's complete Quality System that covers aerospace products.

Sectors may use these requirements for other standards.

IAQG members have committed to recognize the equivalence of certification/registration of a suppliers quality management system to either of the AS, EN or JISQ/ SJAC standards.

Purpose – AS9104 Clause 1.1

The purpose of AS9104 is to give requirements on the process for providing aerospace companies and their suppliers with assessment and certification/ registration of their quality systems, by accredited CRBs.

References – AS9104 - Clause 2

Assessments shall be based on the latest versions of the following quality systems standards and guidelines as appropriate, by accredited CRBs.

- **AS/EN/JISQ 9100 Quality Management Systems – Aerospace – Requirements**
- **AS/EN 9110 Quality Management Systems – Aerospace – Requirements for Maintenance Organizations**
- **AS/EN 9120 Quality Management Systems – Aerospace – Requirements for Stockist / Distributors**
- **NOTE: The above standards are referred throughout AS9104 as AQMS Standards.**

References – AS9104 – Clause 2

- **AS/EN/SJAC 9101 Quality Management Systems Assessment.**
- **AS/EN 9111 Quality Management System Assessment applicable to Maintenance Organizations.**
- **AS/EN 9121 Quality System Assessment Applicable to Stockist Distributors.**
- **NOTE: The above standards are referred to throughout AS9104 as the Aerospace Assessment Report and Questionnaires.**

- **AS/EN/SJAC 9102 Aerospace First Article Inspection Requirement.**
- **AS/EN/SJAC 9103 Variation Management of Key Characteristics.**
- **ISO 9000 Quality Management Systems – Fundamentals and Vocabulary.**
- **ISO 9001 Quality Management Systems – Requirements.**
- **ISO 9004 Quality Management Systems – Guidelines for Performance Improvements.**

References – AS9104 – Clause 2

- **ISO 19011 Guidelines for Quality and/or Environmental Management Systems Auditing.**
- **ISO/IEC Guide 61 General Requirements for Assessment and accreditation of Certification/Registration Bodies.**
- **ISO/IEC Guide 62 General requirements for Bodies Operating Assessment and Certification/Registration of Quality Systems.**

- **IAF Guidance on the Application of ISO/IEC Guide 61.**
- **IAF Guidance on the Application of ISO/IEC Guide 62.**

- **NOTE:**
- **ISO/IEC Guide 61 is being replaced by ISO 17011.**
- **ISO/IEC Guide 62 is being replaced by ISO 17021.**

Definitions – AS9104 – Clause 3

3.1 Accreditation Body (AB):

- A body recognized by an IAQG sector that has the primary responsibility for the accreditation of CRBs to issue certifications/registrations to AQMS standards.

3.2 Aerospace:

- The business of design, manufacture, maintenance, distribution and support of aviation vehicles and engines, accessories and component parts, all ancillary and allied businesses including aerospace vehicle operations.

3.3 Aerospace Experience Auditor [1]:

- An auditor that has met the requirements set forth in 7.2, 7.3 or 7.4 of AS9104.

3.4 Aerospace Product:

- An aircraft, rotorcraft, guided weapon, launcher, spacecraft or other product designed to travel through the air, inside or outside the ground effect, or to travel outside the influence of the earth's atmosphere or major components of these products such as engines or major sub-systems or parts, appliances, equipment and materials as contained in these.

Definitions – AS9104 – Clause 3

3.5 Auditor [2]:

- A person that has met the requirements set forth in 7.1 of AS9104.
[1], [2] NOTE: Sectors may use other names for 'Auditor', 'Aerospace Auditor' and 'Aerospace Experienced Auditor' as long as the requirements of this documents are applied.

3.6 Certification/Registration Body (CRB):

- A party that audits and certifies/registers the quality management system of organizations with respect to published quality management system standards and any supplementary documentation required under the system.

3.7 International Aerospace Quality Group (IAQG):

- A body of prime aerospace OEMs. This group is chartered to develop common requirements for use by the aerospace industry for quality improvement.

3.8 International Aerospace Quality Group (IAQG) Sector or Sector:

- A sub-structure of the IAQG, consisting of the members in a specific area, such as Americas, Europe and Asia/Pacific.

Definitions – AS9104 – Clause 3

3.9 Nonconformity:

- The absence of, or the failure to implement and maintain, one or more quality management system requirements, or a situation that would, on the basis of available objective evidence, raise significant doubt as to the quality of what the organization is supplying.
- **Major:** The absence of, or total breakdown of a quality management system element specified in the AQMS standard or any non-conformities where the effect is judged to be detrimental to the integrity of the product, processes or service.

- **Minor:** A single system failure or lapse in conformance with a procedure relating to the AQMS standard.
- **NOTE:** A number of minor non-conformities against one requirement can represent a total breakdown of the system and this can be considered as a major nonconformity.
- Any finding (e.g., comments, observations) that equates to the above definition shall be documented as a nonconformity, categorized as major or minor, and dealt with in accordance with Clause 8.3.

Definitions – AS9104 – Clause 3

3.10 On Line Aerospace Supplier Information System (OASIS):

- **The web-based IAQG database containing information on participating National Aerospace Industry Associations, ABs, accredited CRBs, authenticated Aerospace Experience Auditors, Certified Suppliers and Assessments.**

3.11 Sector Management Structure (SMS):

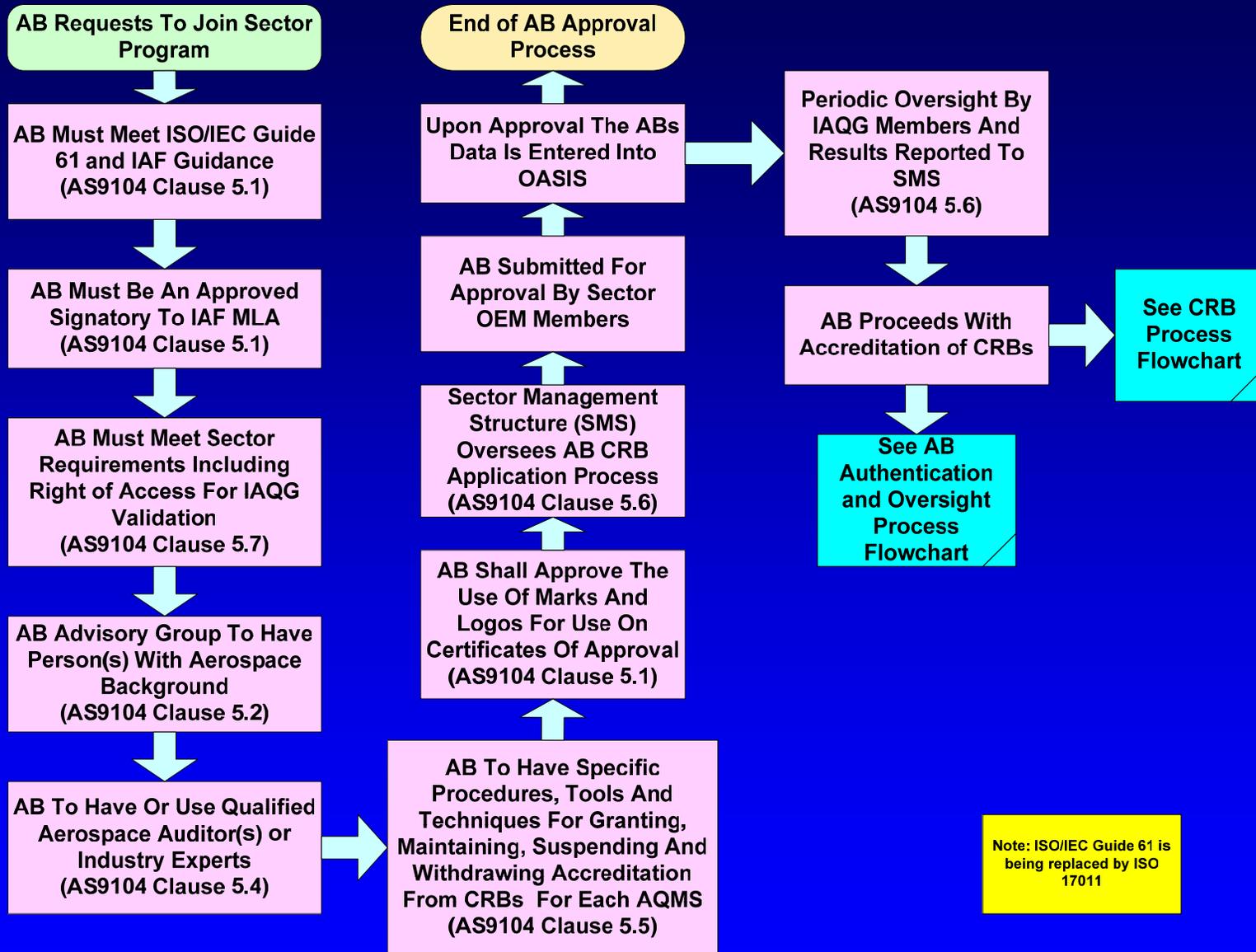
- **The organization established in a sector that manages the application of the sector scheme based on this document. Each sector may use a different name for this organization (e.g., Registrar Management Committee in the Americas and Asia/Pacific, Certification Body Management Committee in Europe within AECMA).**

General – AS9104 – Clause 4

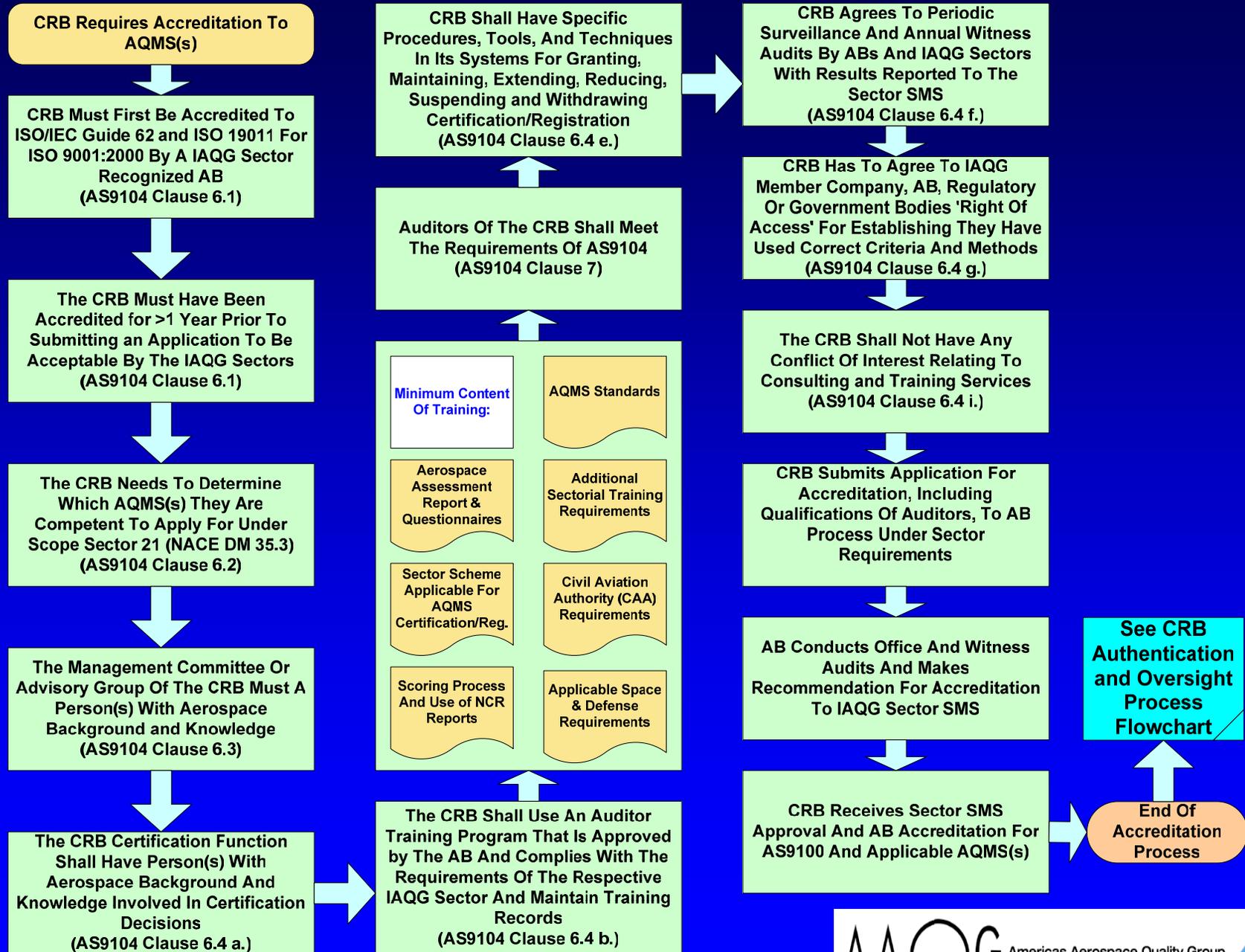
- 4.1 The requirements stated in AS9104 shall be based on the latest versions of the documents listed in AS9104 Section 2.
- 4.2 Aerospace additional requirements are identified in the AQMS Standards as bold italic items. These elements are in addition to ISO 9001 elements and should also be applied in the organization's quality system.

- 4.3 Data, in the form of checklists, approvals or other company specific information, generated in the application of this document shall be handled as "confidential, proprietary and sensitive" between the parties generating, collecting, or using the data. Companies using this data shall keep its usage confidential both internally and externally, unless otherwise agreed in writing by the consenting parties. Data resident at the ABs and CRBs on OEMs shall not be shared with OEM competitors. However, this data may be subject to audit or review at any time by applicable ABs, SMS, government or regulatory bodies and the IAQG Oversight Team (OT) (see AS9104 Section 14).

Accreditation Body Process

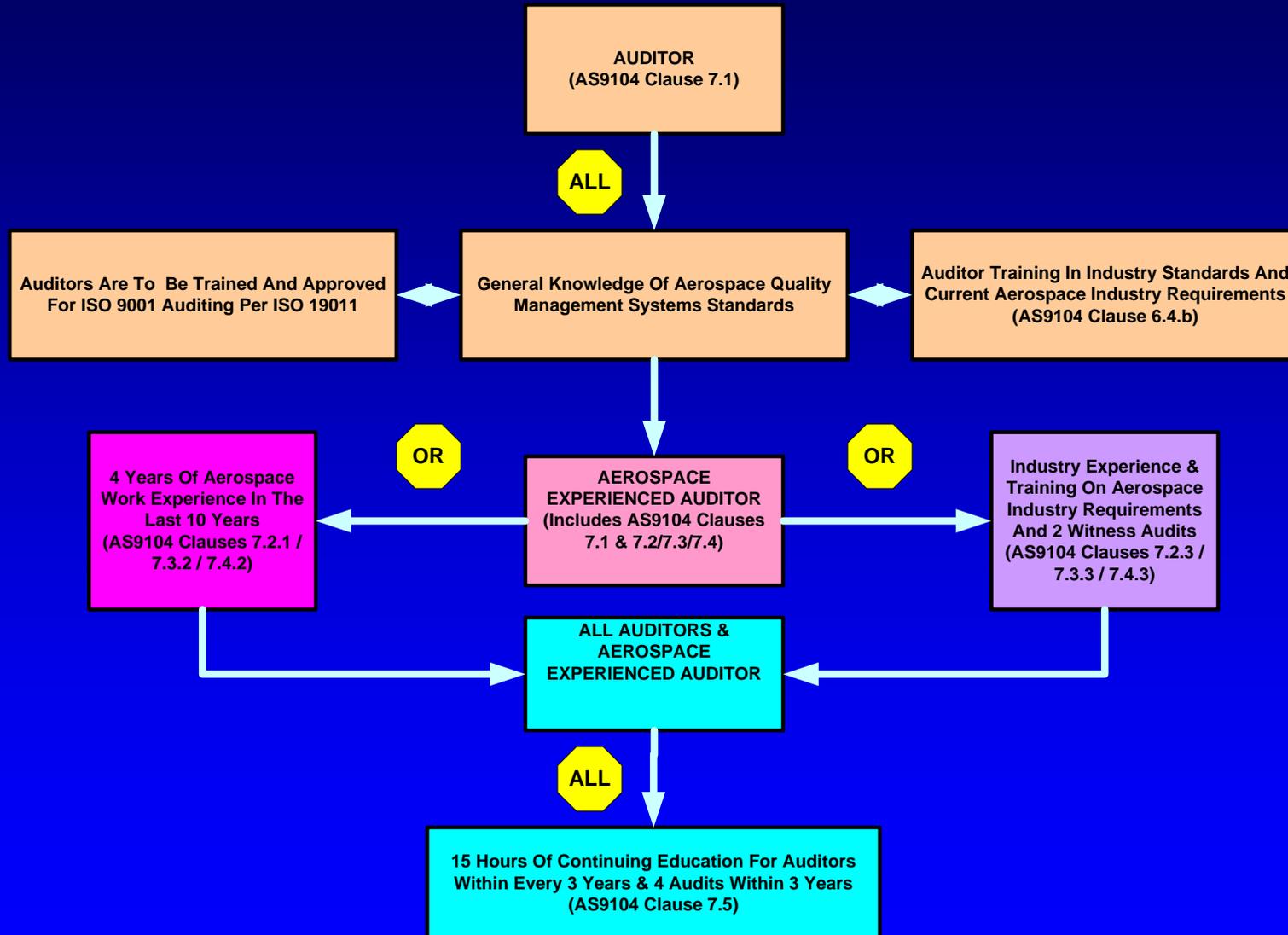


Certification/Registration Body Process

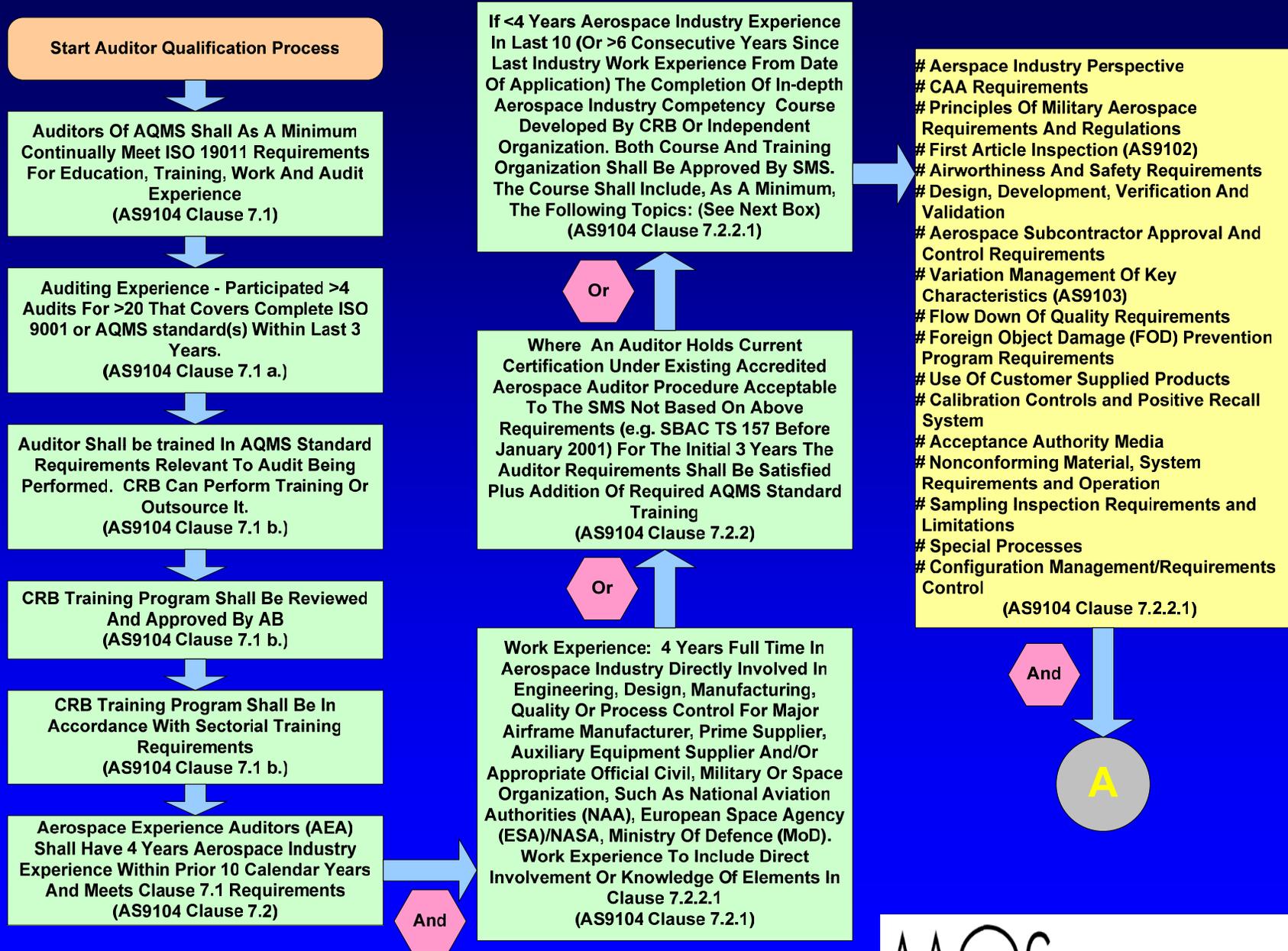


Summary Of Requirements For Aerospace Industry Auditors

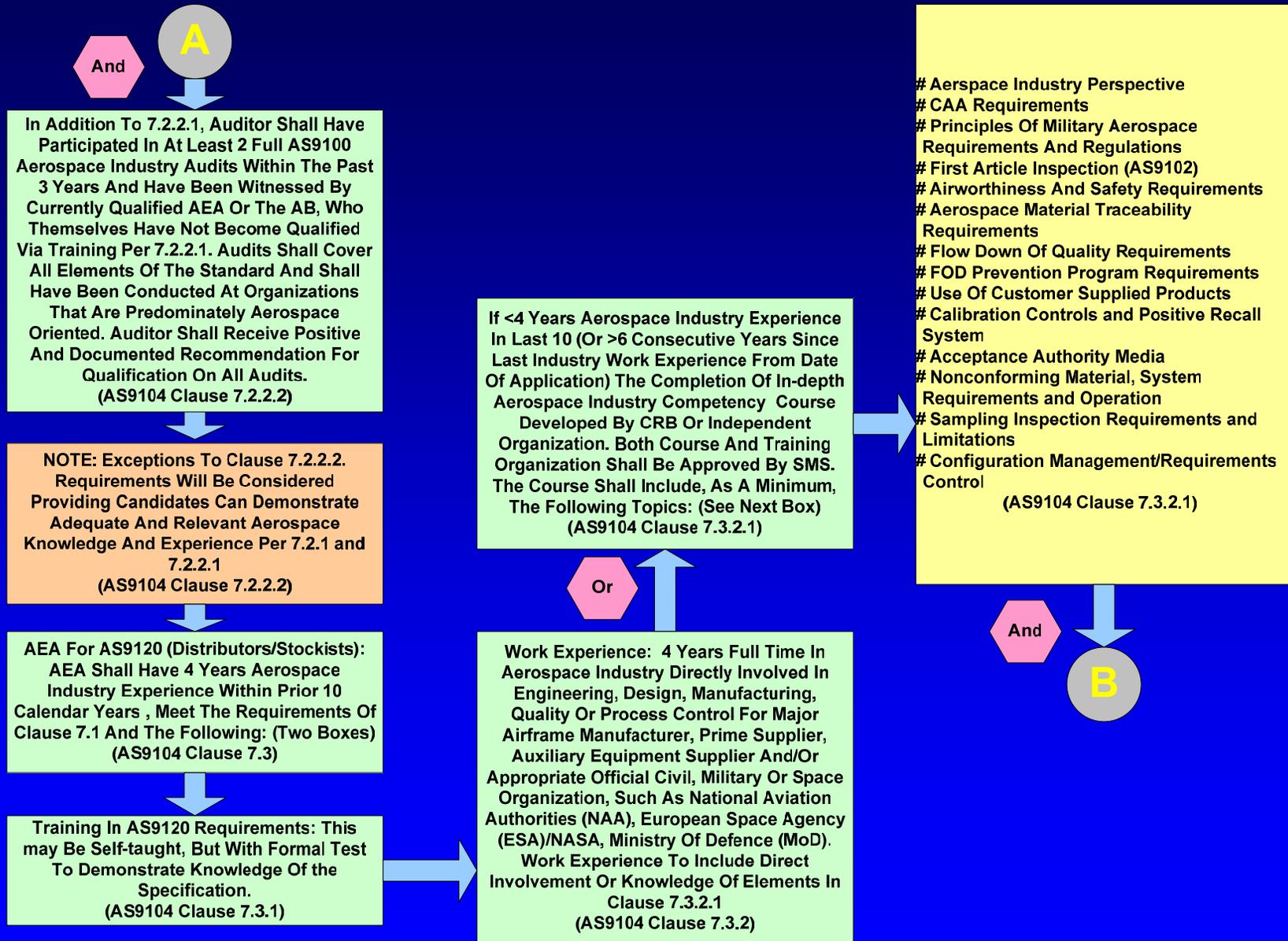
AS9104 Clause 7.6 TABLE 1



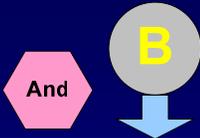
Requirements For Auditors



Requirements For Auditors (2)



Requirements For Auditors (3)



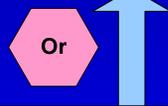
In Addition To 7.3.2.1, Auditor Shall Have Participated In At Least 2 Full AS9100 Or AS9110 Aerospace Industry Audits Within The Past 3 Years And Have Been Witnessed By Currently Qualified AEA Or The AB, Who Themselves Have Not Become Qualified Via Training Per 7.3.2.1. Audits Shall Cover All Elements Of The Standard And Shall Have Been Conducted At Organizations That Are Predominately Aerospace Oriented. Auditor Shall Receive Positive And Documented Recommendation For Qualification On All Audits.
(AS9104 Clause 7.3.2.2)

NOTE: Exceptions To Clause 7.2.2.2. Requirements Will Be Considered Providing Candidates Can Demonstrate Adequate And Relevant Aerospace Knowledge And Experience Per 7.3.2 and 7.3.2.1
(AS9104 Clause 7.2.2.2)

AEA For AS9110 (Maintenance):
AEA Shall Have 4 Years Aerospace Industry Experience Within Prior 10 Calendar Years , Meet The Requirements Of Clause 7.1 And The Following: (Two Boxes)
(AS9104 Clause 7.4)

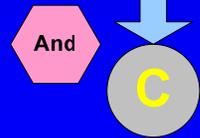
Training In AS9110 Requirements And Tested.
(AS9104 Clause 7.4.1)

If <4 Years Aerospace Industry Experience In Last 10 (Or >6 Consecutive Years Since Last Industry Work Experience From Date Of Application) The Completion Of In-depth Aerospace Industry Competency Course Developed By CRB Or Independent Organization. Both Course And Training Organization Shall Be Approved By SMS. The Course Shall Include, As A Minimum, The Following Topics: (See Next Box)
(AS9104 Clause 7.4.1.2)

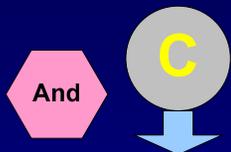


Work Experience: 4 Years Full Time In Aerospace Industry Directly Involved In Engineering, Design, Manufacturing, Quality Or Process Control For Major Airframe Manufacturer, Prime Supplier, Auxiliary Equipment Supplier And/Or Appropriate Official Civil, Military Or Space Organization, Such As National Aviation Authorities (NAA), European Space Agency (ESA)/NASA, Ministry Of Defence (MoD). In Addition They Shall Had Specific Training In Repair/Overhaul Or Demonstrated 2 Years Full-time Experience In The Last 4 Years. Work Experience To Include Direct Involvement Or Knowledge Of Elements In Clause 7.4.1.2
(AS9104 Clause 7.4.1.1)

- # Aerospace Industry Perspective
 - # CAA Requirements
 - # Principles Of Military Aerospace Requirements And Regulations
 - # First Article Inspection (AS9102)
 - # Airworthiness And Safety Requirements
 - # Design, Development, Verification And Validation
 - # Aerospace Material Traceability Requirements
 - # Aerospace Subcontractor Approval And Control Requirements
 - # Variation Management Of Key Characteristics (AS9103)
 - # Flow Down Of Quality Requirements
 - # FOD Prevention Program Requirements
 - # Use Of Customer Supplied Products
 - # Calibration Controls and Positive Recall System
 - # Acceptance Authority Media
 - # Nonconforming Material, System Requirements and Operation
 - # Sampling Inspection Requirements and Limitations
 - # Special Processes
 - # JAR/FAR 145/136 (EASA IR M)
 - # Tool Control
 - # "Return To Service" Process
 - # Flight Test
 - # Functional Check Flight
 - # Weight And Balance
 - # Wing Walking Or Aircraft Marshalling Techniques
 - # Configuration Management/Requirements Control
- (AS9104 Clause 7.3.2.1)



Requirements For Auditors (4)



In Addition To 7.4.2.1, Auditor Shall Have Participated In At Least 2 Full Aerospace Industry Audits Within The Past 3 Years And Have Been Witnessed By Currently Qualified AEA Or The AB, Who Themselves Have Not Become Qualified Via Training Per 7.4.2.1. Audits Shall Cover All Elements Of The Standard And Shall Have Been Conducted At Organizations That Are Predominately Aerospace Oriented. Auditor Shall Receive Positive And Documented Recommendation For Qualification On All Audits.
(AS9104 Clause 7.4.1.3)

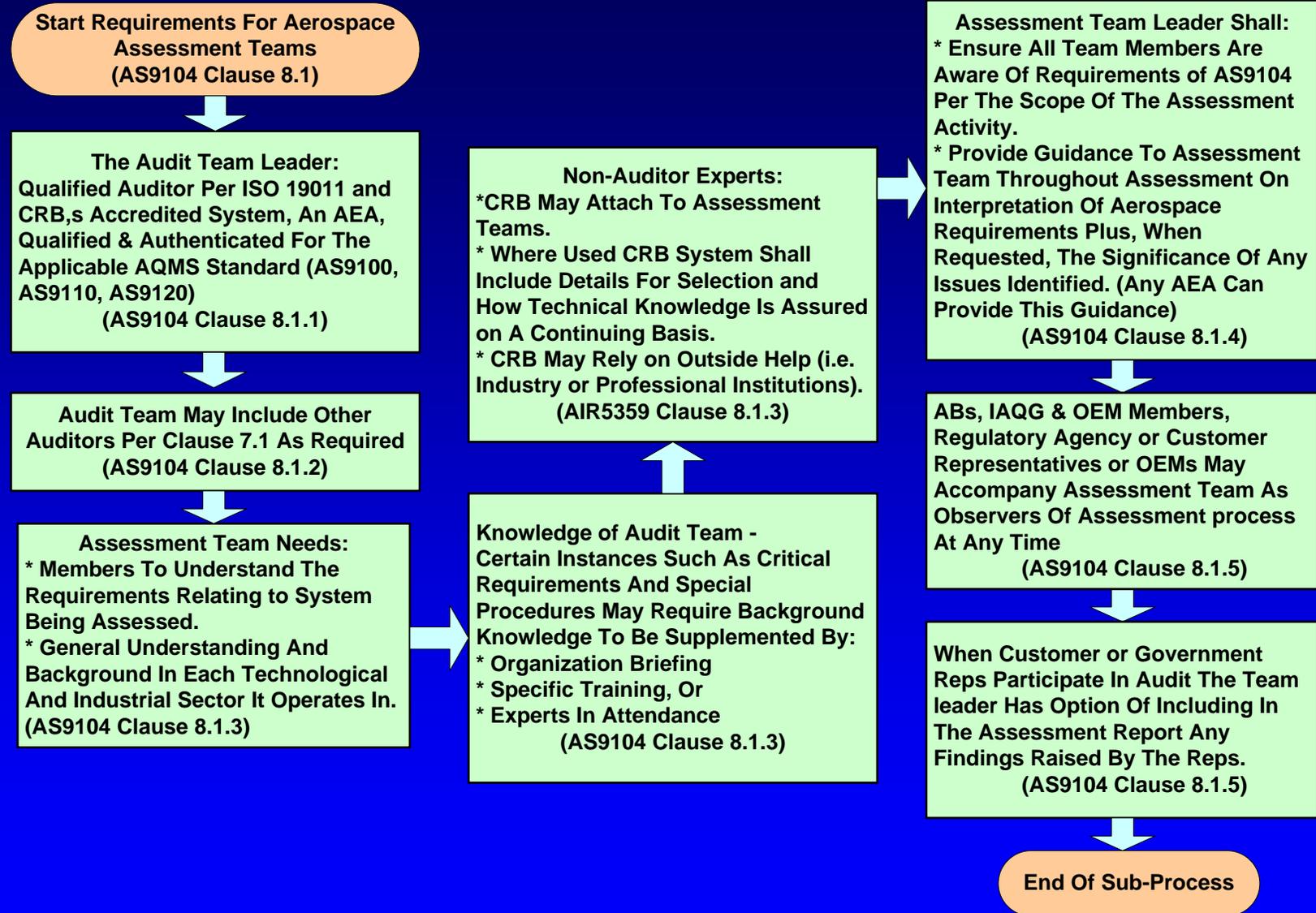
NOTE: Exceptions To These Requirements Will Be Considered Providing Candidates Can Demonstrate Adequate And Relevant Aerospace Knowledge And Experience Per 7.4.1.1 and 7.4.1.2
(AS9104 Clause 7.4.1.3)

To Maintain Qualification All Auditors And AEAs Shall Participate In At Least 4 Aerospace Audits In 3 Years And Participate In Continuing Education In Accordance With Sectorial Training Requirements That Requires Review Of The Changes To The Aerospace Industry Standards, Auditing Methods And ISO Requirements At A Minimum Of 15 Hours Total Within 3 Years
(AS9104 Clause 7.5)

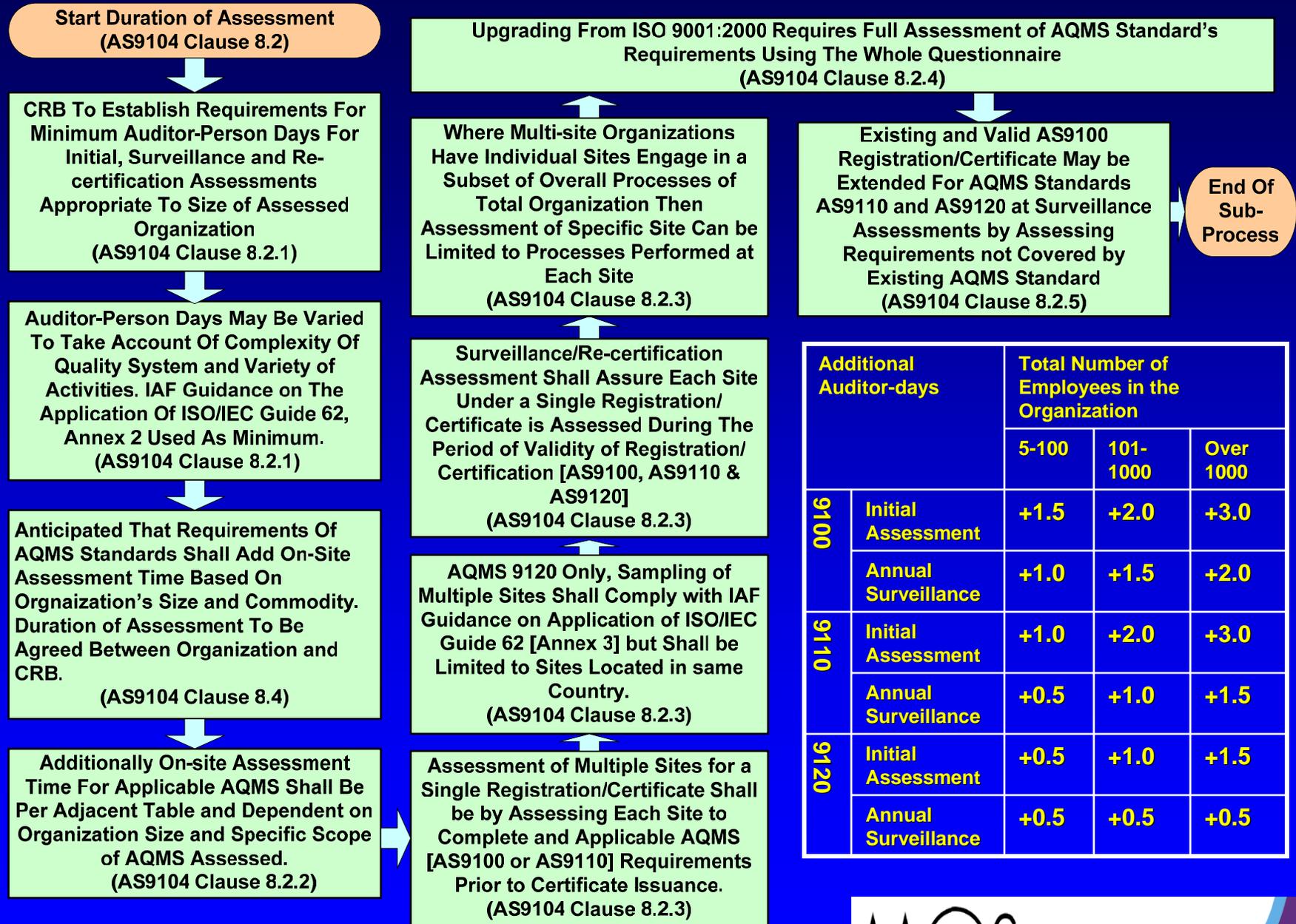
Summary Of Requirements For Aerospace Industry Auditors
TABLE 1

AUDITOR (AS9104 Clause 7.1)	Auditors Are To Be Trained And Approved For ISO 9001 Auditing Per ISO 19011	
	General Knowledge Of Aerospace Quality Management Systems Standards	
	Auditor Training In Industry Standards And Current Aerospace Industry Requirements (AS9104 Clause 6.4.b)	
AEROSPACE EXPERIENCED AUDITOR (Includes AS9104 Clauses 7.1 & 7.2/7.3/7.4)	OR 4 Years Of Aerospace Work Experience In The Last 10 Years (AS9104 Clauses 7.2.1 / 7.3.2 / 7.4.2)	OR Industry Experience & Training On Aerospace Industry Requirements And 2 Witness Audits (AS9104 Clauses 7.2.3 / 7.3.3 / 7.4.3)
ALL AUDITORS AEROSPACE EXPERIENCED AUDITORS	15 Hours Of Continuing Education For Auditors Within Every 3 Years & 4 Audits Within 3 Years (AS9104 Clause 7.5)	

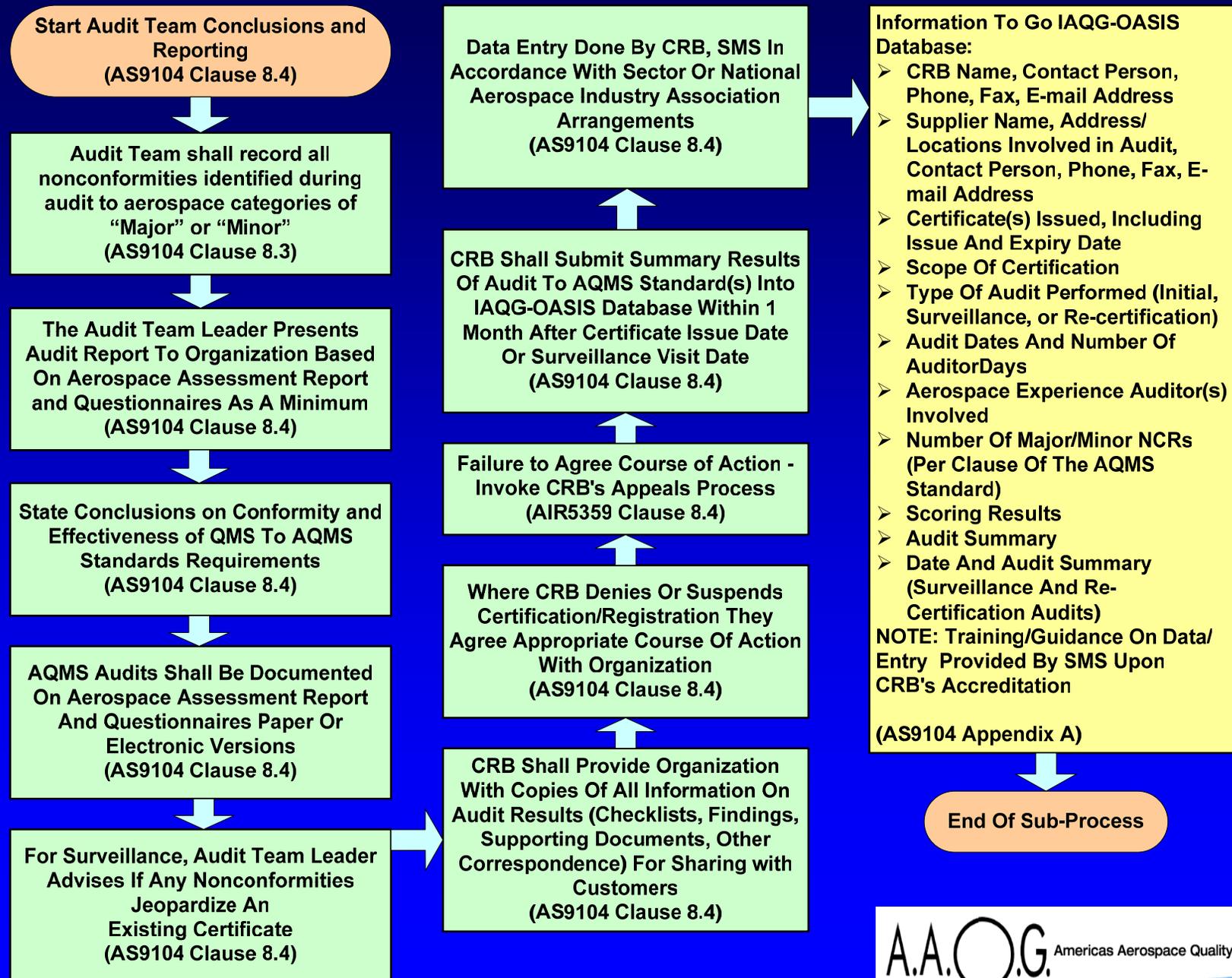
Requirements For Assessment And Reporting (1)



Requirements For Assessment And Reporting (2)



Requirements For Assessment And Reporting (3)



Registration/Issue of Certificates

Start Registration/Issue of Certificates
(AS9104 Clause 8.6)

No certificates or approvals to AQMS Standards or any combination of these standards with ISO 9001 shall be issued unless:

- All Major and Minor nonconformities have been satisfactorily corrected
- Root cause analysis has been conducted
- Effective corrective action has been implemented
- CRB has verified bullets two and three above.

(AS9104 Clause 8.3)

Certification/registration documentation shall meet ISO/IEC Guide 62 requirements
(AS9104 Clause 8.6)

In addition, certificates issued by an AQMS accredited CRB shall at a minimum contain statements that certify the following concepts:

- Conformity of the suppliers QMS to the requirements of ISO 9001:2001* and/or applicable specific AQMS 9100/9110/9120* version used (e.g. AS9100 or prEN9110).
- Audit performed i.a.w requirements of relevant SMS Aerospace Supplier Quality System Certification/Registration requirements, including reference to applicable SMS document.
- Effective date of certification / registration and term of validity with maximum period of 3 years.
- CRB is accredited under the control of the aerospace sector scheme

[* References to be appropriate to scope of certification / registration]

NOTE: Above statements are NOT pro-forma words. CRB shall establish own wording to certify above concepts. Separate certificates for ISO 9001 and relevant AQMS are permitted.

(AS9104 Clause 8.6)

Certificate may show National Aerospace Industry Association or SMS logo. If logo used then certificate shall mention CRB is accredited and qualified under this scheme
(AS9104 Clause 8.6)

Letters of Conformance and unaccredited assessment statements shall be clearly distinguishable from accredited certificates. Unaccredited certificates shall not be issued.
(AS9104 Clause 8.6)

Where CRB misuses a logo or AS9104 their accreditation may be suspended or revoked.
(AS9104 Clause 8.6)

End Of Sub-Process

Surveillance and Re-certification Assessments

Start Surveillance and Re-certification Assessments (AS9104 Clause 8.5)

For accredited certificates CRB shall conduct surveillance and re-certification audits i.a.w AS9104, SMS requirements, ISO/IEC Guide 62 and IAF Guidance on the Application of ISO/IEC Guide 62 (AS9104 Clause 8.5)

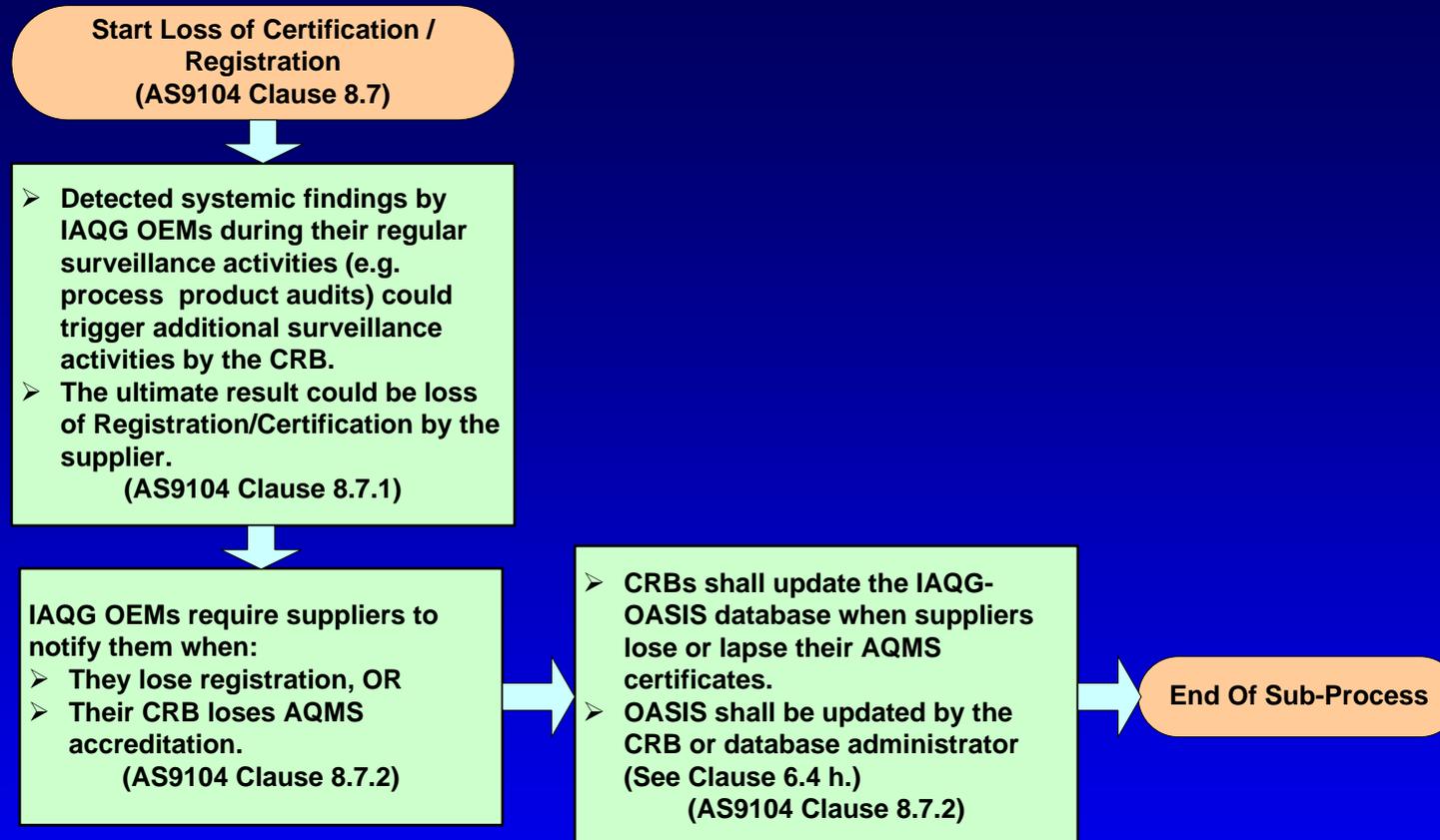
Surveillance scoring:

- Only the audited areas of the AQMS shall be scored using the Aerospace Assessment Report and Questionnaires.
- Scoring for non-assessed areas of AQMS remain unchanged from previous audit.
- If no scoring performed on previous audit, then scores shall be calculated and assigned to non-assessed areas of AQMS based on previous audit report.
- (AS9104 Clause 8.5)

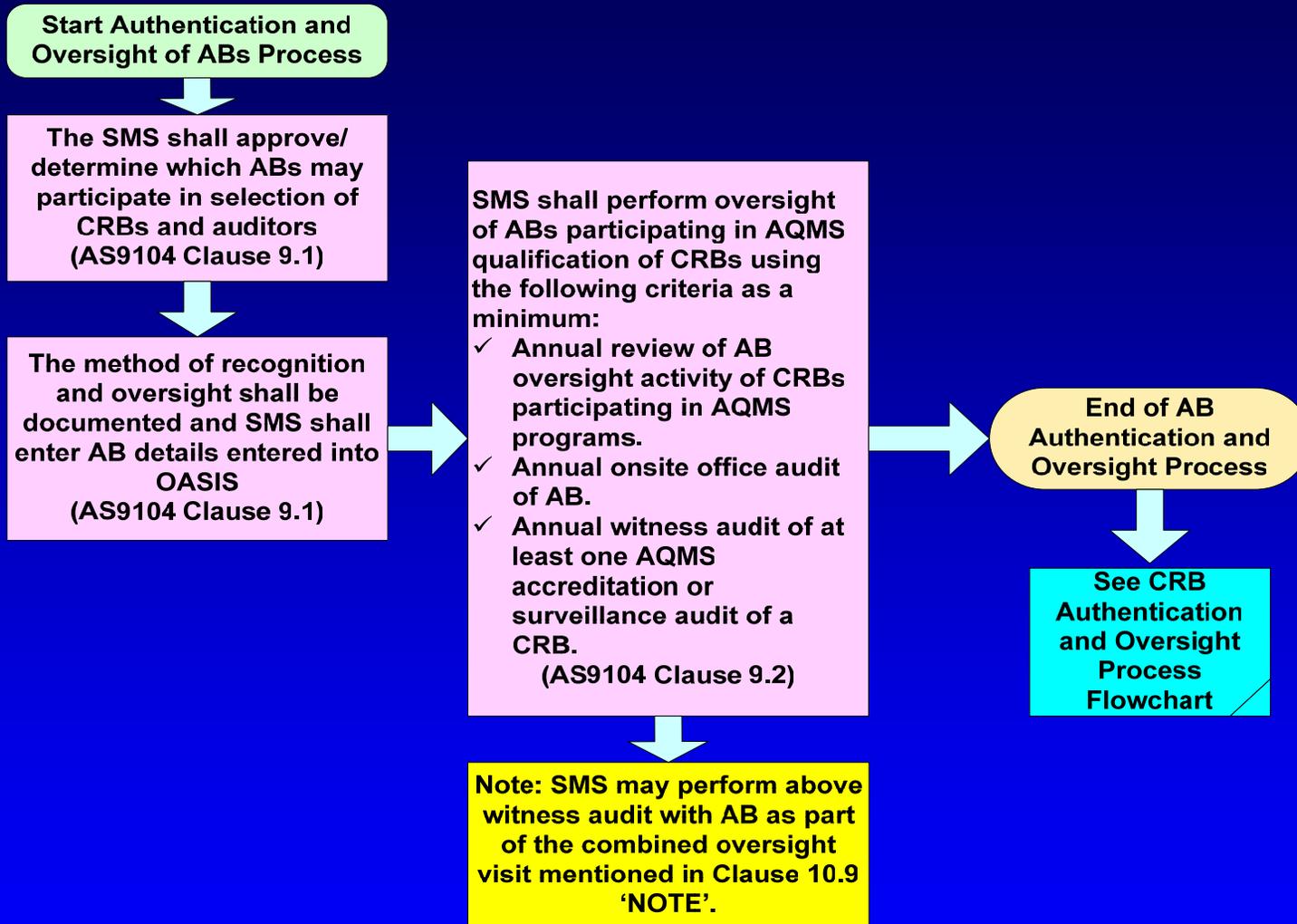
Results from all surveillance and re-certification audits shall be entered into the IAQG-OASIS database. (AS9104 Clause 8.5)

End Of Sub-Process

Loss of Certification/Registration



Authentication and Oversight of Accreditation Body Process



Authentication and Oversight of Certification/Registration Bodies

Start Authentication and Oversight of Certification/Registration Bodies (AS9104 Clause 10.0)

The AQMS Standard qualification of CRBs shall be granted and surveillance performed i.a.w AS9104. (AS9104 Clause 10.1)

- The SMS shall conduct an annual review to evaluate CRBs and the effectiveness of the process for approval of CRBs.
- The review shall be i.a.w AB procedures and have SMS approval. (AS9104 Clause 10.1)

The CRB's Audit Management Program shall be approved via AB oversight. (AS9104 Clause 8.4)

- IAQG sector schemes shall accredit management offices of CRBs (the office which manages the AQMS certification/ registrations).
- The concept of "satellite offices" does not exist for AQMS standards. (AS9104 Clause 10.3)

NOTE:

- Member companies of IAQG sectors may choose to participate in a shared CRB oversight process.
- This process should be documented and managed by the respective SMS. (AS9104 Clause 10.6)

Member companies of IAQG sectors will perform oversight of CRBs used by their suppliers and report results to the SMS, as necessary. (AS9104 Clause 10.6)

ABs shall conduct annual surveillance audits and one witness audit per year (minimum) of CRBs having AQMS Standards accreditation, per ABs operating procedures. (AS9104 Clause 10.5)

- CRBs can conduct audits in any country from the accredited office.
- The accredited office shall manage the audit and make the certification decision.
- When auditing in other countries the audit team shall address any applicable local aerospace regulations. (AS9104 Clause 10.4)

The SMS shall perform oversight on participating CRBs by:

- Annual onsite office assessment at each CRB.
- Witness at least one audit of an AQMS standard by the CRB at a supplier. (AS9104 Clause 10.9)

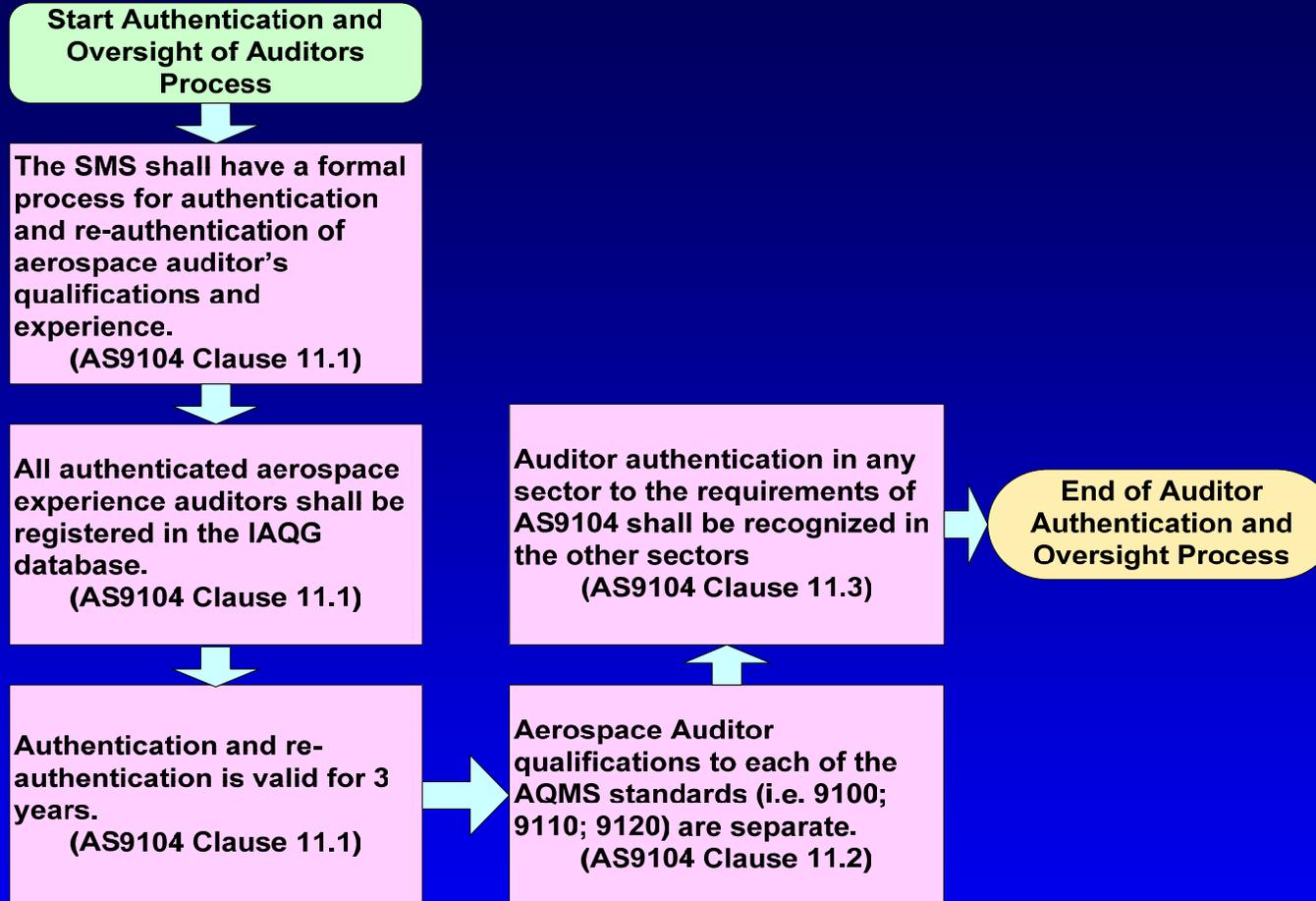
NOTE:

- SMS may choose to utilize the data generated by the shared CRB oversight process referenced in Section 10.6 to meet these requirements.
- It is recommended, whenever possible, that SMS combine this oversight with AB's office and witness audits of CRBs defined in Clause 10.5. (AS9104 Clause 10.9)

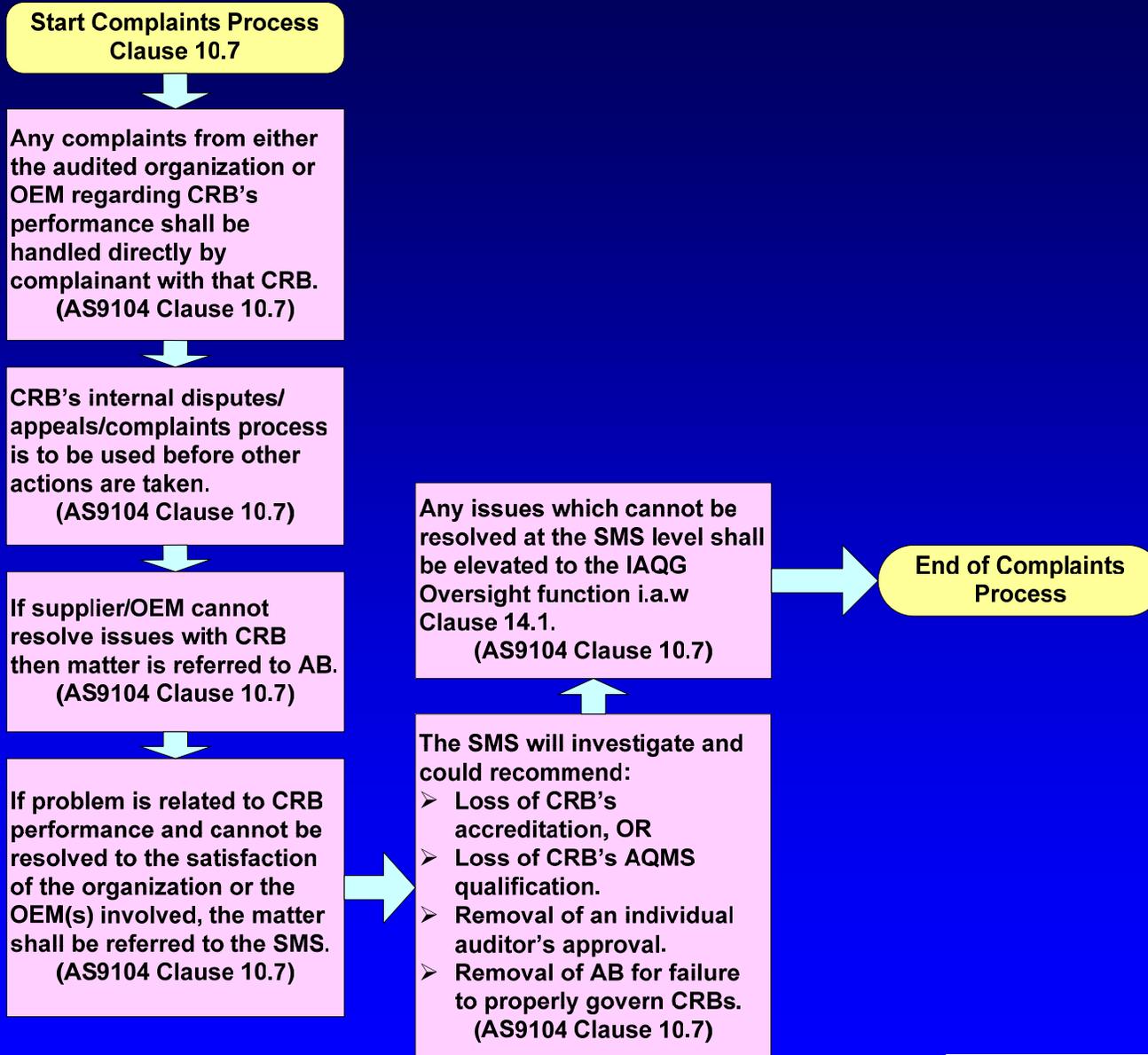
- CRBs may lose AQMS Standard(s) accreditation based on performance, per ABs operating procedures.
- ABs shall immediately notify the SMS when CRB accreditation is suspended or withdrawn.
- SMS shall notify IAQG OEMs of this change.
- AB shall update OASIS to reflect any change in CRB accreditation status. (AS9104 Clause 10.8)

End Of Sub-Process

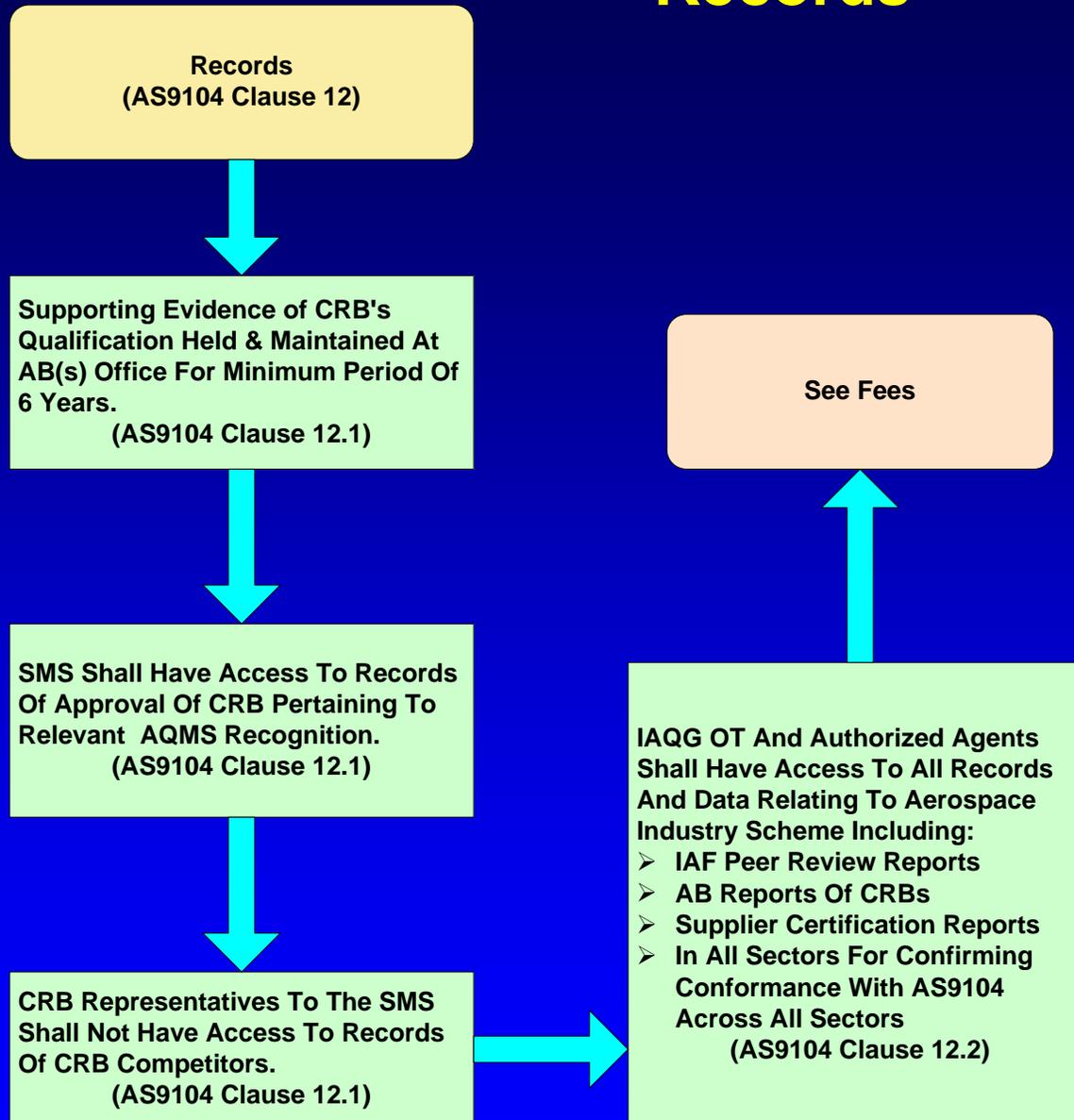
Authentication and Oversight of Auditors Process



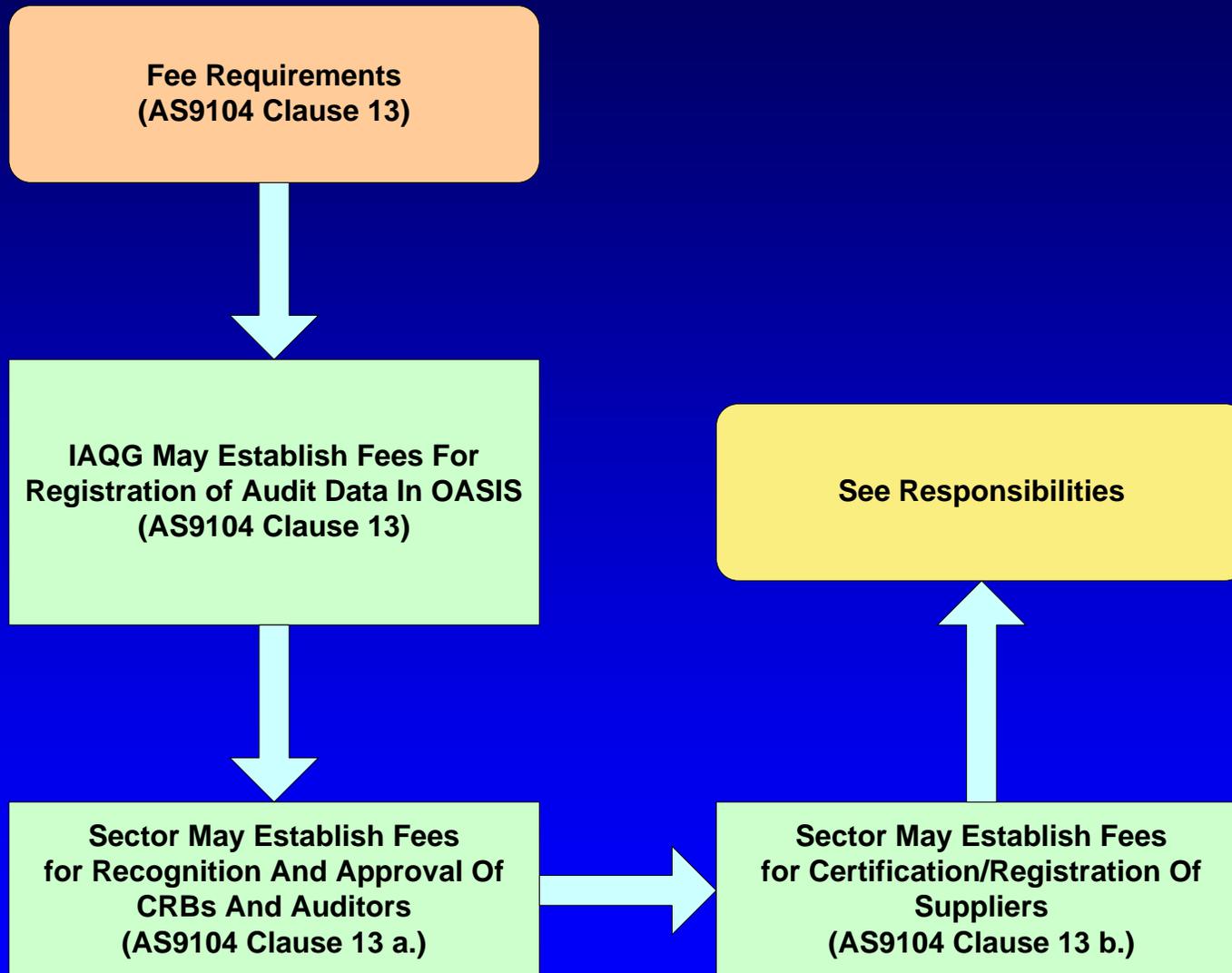
Complaints Process



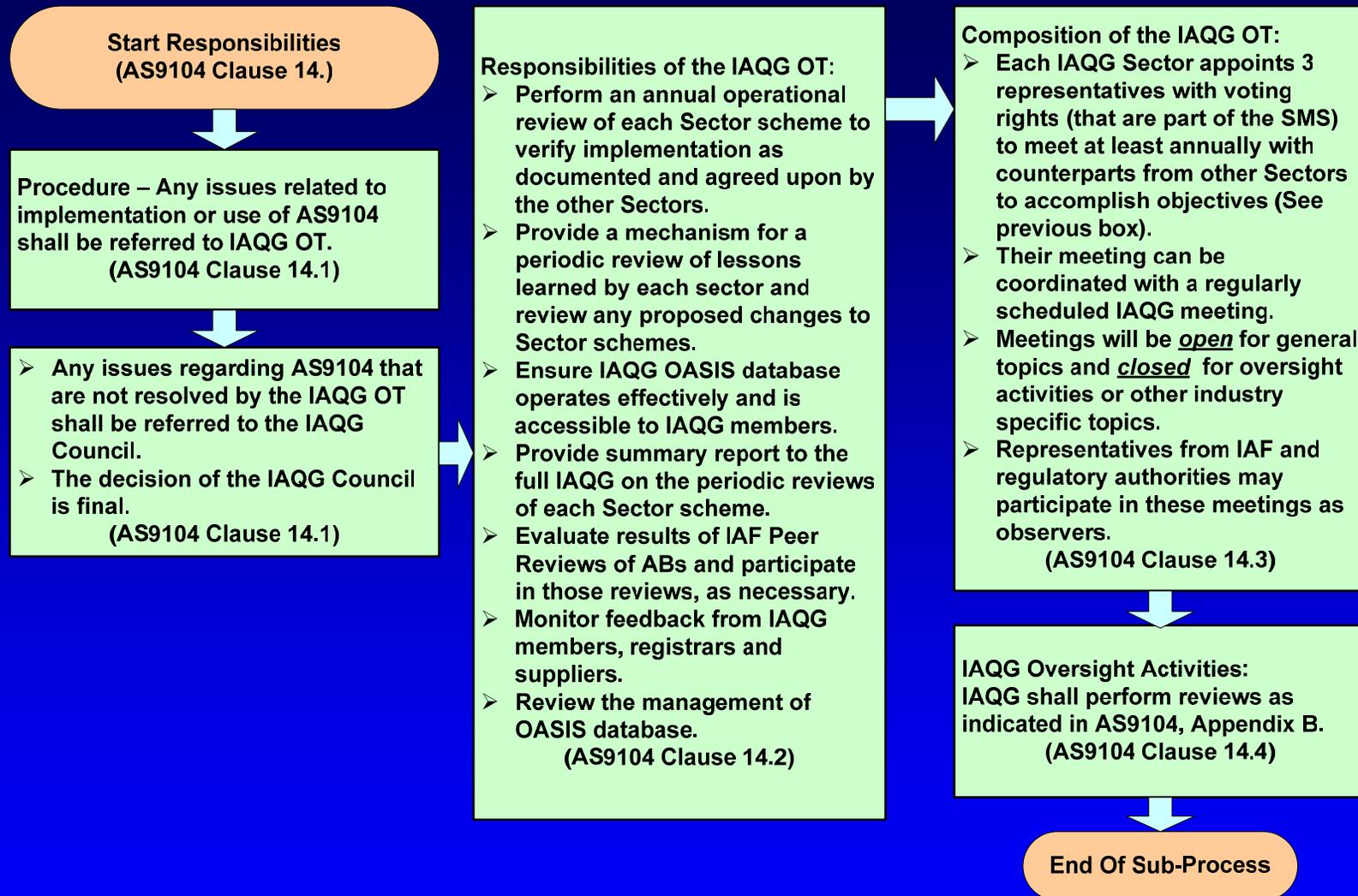
Records



Fees



Responsibilities



Sector Management Structure (SMS)

Start Sector Management Structure
(AS9104 Clause 15.)

Responsibilities of the SMS

The SMS is responsible for the:

- Management
- Review
- Approval
- Implementation, and
- Modification

of their sectorial procedure(s).
(AS9104 Clause 15.1)

The SMS shall be the governing body by which the requirements for and approval of CRBs and auditors to AQMS Standards are determined.
(AS9104 Clause 15.1)

Composition of SMS

The composition of each SMS is based on the local situation of each Sector and can be comprised of representatives from:

- ABs
- CRBs
- Suppliers
- Regulatory authorities
- Sector group (i.e. Americas Aerospace Quality Group (AAQG); Asia Pacific Aerospace Quality Group (APAQG); European Aerospace Quality Group (EAQG); AECMA)

(AS9104 Clause 15.2)

Reporting of Essential Data

Each SMS shall report essential data that describes deployment activities to the IAQG OT.

Essential data includes information on:

- The auditor population (approvals, disapprovals, Number of Aerospace Experience Auditors)
- The CRB population (approvals, disapprovals)
- Auditor training and authentication organizations
- Number of AQMS Standards certifications issued, and
- IAQG OEM oversight activity.

AB, CRB, auditor approval documents and audit reports by CRBs of suppliers, and by ABs of CRBs may be audited by the IAQG OT.

(AS9104 Clause 15.3)

The following serve in an advisory capacity without formal voting rights:

- ABs
- CRBs
- Suppliers
- Regulatory authorities.

(AS9104 Clause 15.2)

Sector Resolutions

Each Sector may define a process for, and issue resolutions (i.e. a change or an interpretation to their scheme). However, they shall ensure to get concurrence from the other Sectors IAQG OT representatives before issuance.

(AS9104 Clause 15.4)

SMS Authority

The SMS has the authority for suspending a national scheme (ABs and CRBs in case of lack of evidence on compliance to or serious breach of the requirements of AS9104.

The actions and resolutions associated to a national scheme suspension will be established by the involved SMS and communicated through the IAQG - OT to the other Sectors

(AS9104 Clause 15.5)

End Of Sub-Process

IAQG Oversight Team (OT) Activities

Start IAQG OT Activities
(AS9104 Appendix B)

Oversight Team (OT) Meetings

During meetings the oversight function shall review the following topics, as appropriate:

- Reports from each of the sector schemes.
 - IAF Peer Reviews.
 - Appeals.
 - Changes to this document and sector scheme documents.
 - 'Resolutions' made by individual sector schemes.
 - Lessons learned.
 - Feedback from Members, Registrars, Suppliers.
 - Database performance review (see Section B.3).
- (AS9104 Appendix B.1)

Oversight Team (OT) Annual Review of a Sector Scheme

The annual oversight of each scheme format will involve a presentation by the SMS to the OT that demonstrates the compliance of the national scheme to the requirements of this document, including review of:

- Controlling procedures.
- Minutes of SMS meetings.
- Reports of CRB accreditation.
- Certification/Registration Reports from CRBs.
- Auditor authentication records.
- Training body approvals.
- Any feedback from IAQG Members, Registrars and Suppliers as to the kind of job that is being done.
- IAF Peer Reviews (oversight) of IAF AB signatories.

An Oversight report shall be prepared. In addition, separate minutes containing lessons learned from other SMS's shall be produced.
(AS9104 Appendix B.2)

Review of OASIS Database Operations

The review of database operations shall consider:

- Reviewing reports from database administrator relating to rejections of any input data.
- Checking that each SMS has a process of assuring the accuracy of data being generated and maintained in their sector.
- Each sector should look at its own data.
- Sampling of data is permitted.
- Effectiveness and accessibility of the database through feedback monitoring from IAQG Members, ABs, Registrars and Suppliers.

(AS9104 Appendix B.3)

Actions in the Event of Serious Problems

If serious problems are discovered in the operation of a CRB or AB the OT shall make arrangements for an audit or other actions necessary to address the problem.

(AS9104 Appendix B.4)

NOTE:

- Each SMS has the responsibility to manage/resolve these kinds of issues within their sector.
- Only unresolved issues are escalated to the IAQG OT.

End Of AS9104 Process