CORSIA- Verification of CO$_2$ emissions

ICAO Secretariat
ESAF RO: ENV/MET
ICAO-AFCAC SAP and CORSIA Webinar Session (17 & 23 June 2020)

1. The CORSIA verification process for CO_2 emissions

2. State's Order of Magnitude check

3. FAQs on verification

- Under CORSIA, two different reports need to be verified.
  - The Emissions Report, which states the annual CO2 emissions; and
  - the EUCR, which provides information on the cancelled CORSIA Eligible Emissions Units for each three-year compliance period.

- This presentation addresses the verification of <u>only</u> the aeroplane operators' **Emissions Reports** and NOT the Emissions Unit Cancellation Reports (EUCRs).
  - Third-party verification of aeroplane operators' Emissions Reports by an independent accredited verification body is required annually, beginning with the Emissions Reports for 2019 data as described in Annex 16, Volume IV, Appendix 1.

- Key documents
  - Emissions Monitoring Plan;
  - Emissions Report;
  - Verification Report;
  - Verification Template; and
  - ISO GHG standards as a basis for CORSIA verification.

Main Reference Documents

ICAO Standards and Recommended Practices (SARPs)
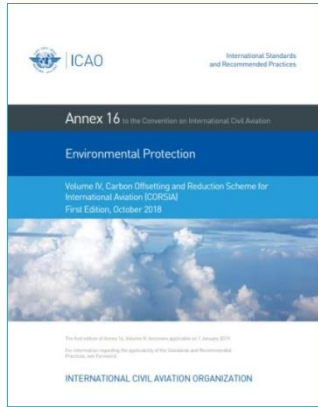
Annex 16 - Environmental Protection, Volume IV: CORSIA

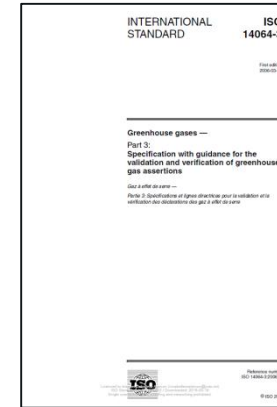*- Part II, Chapter 2, 2.4; Chapter 4, 4.4; and Appendix 6*

ICAO Guidance

Environmental Technical Manual (ETM), Volume IV (Doc 9501): CORSIA
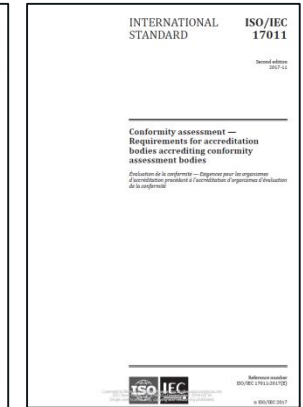
- Chapter 3, 3.3.

ISO Standards

*- **ISO 14064-3:2006:** "Greenhouse gases – Part 3: Specification with guidance for the validation and verification of greenhouse gas assertions."*

*- **ISO 14065:2013** "Greenhouse gases – Requirements for greenhouse gas validation and verification bodies for use in accreditation or other forms of recognition."*

*- **ISO/IEC 17011:2004** "Conformity assessment – General requirements for accreditation bodies accrediting conformity assessment bodies".*
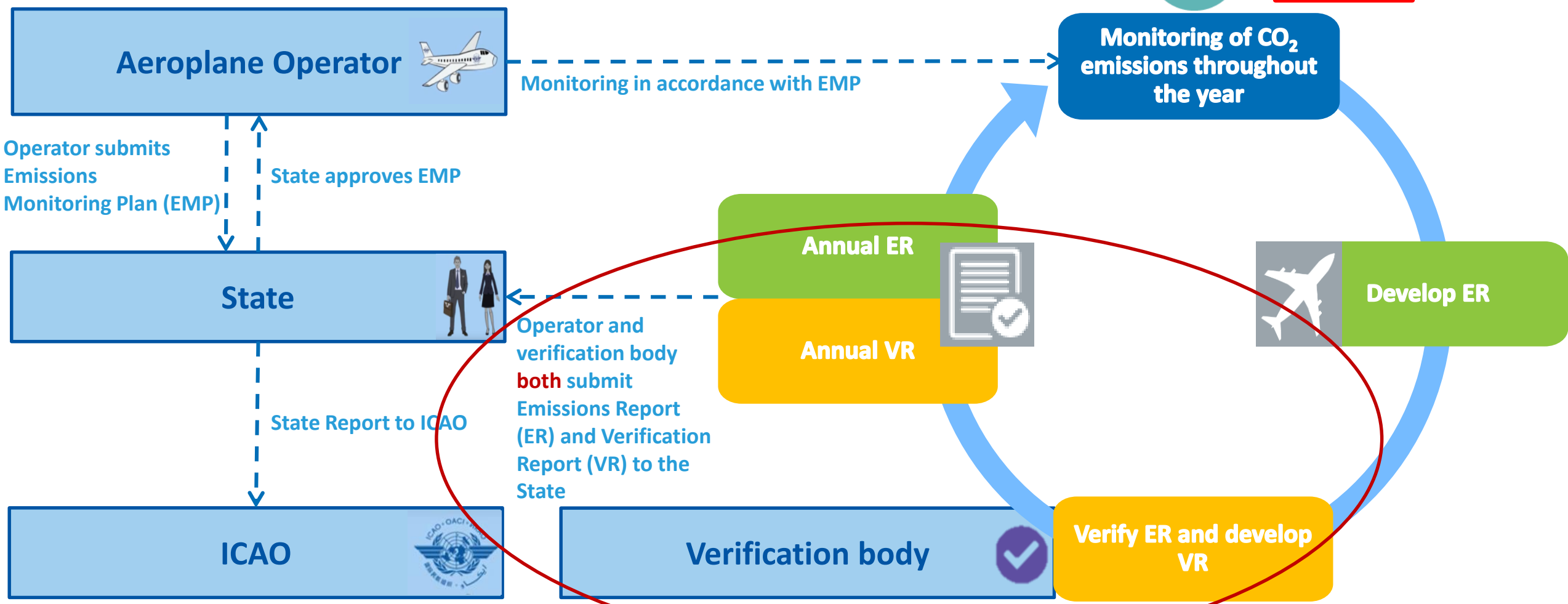
Verification Process

Annual Cycle for MRV Activities

Starting on 1 January 2019

Aeroplane Operator

Monitoring in accordance with EMP

Monitoring of CO_2 emissions throughout the year

Operator submits Emissions Monitoring Plan (EMP)

State approves EMP

State

State Report to ICAO

ICAO

Annual ER

Annual VR

Operator and verification body **both** submit Emissions Report (ER) and Verification Report (VR) to the State

Develop ER

Verify ER and develop VR
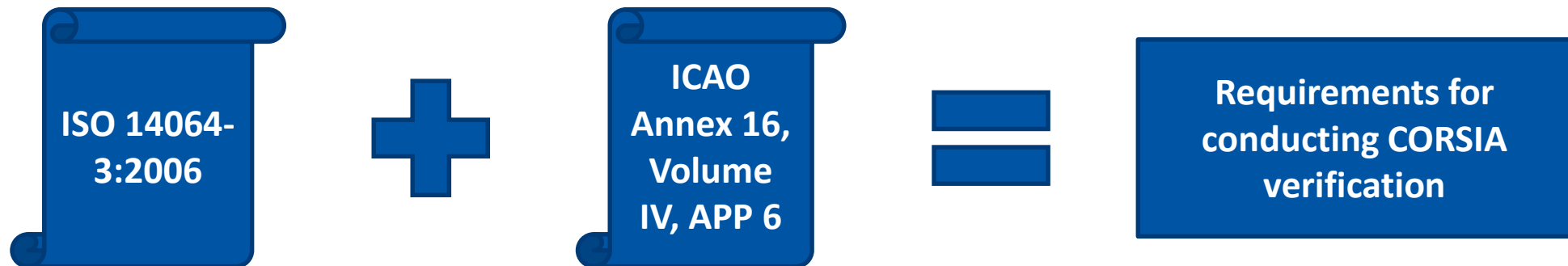
Verification body

What is Verification?

- A process to ensure that the information is accurate without errors prior to an aeroplane operator's reporting to State

- Requires an independent third-party

- Already in use in various forms
 - financial auditing, greenhouse gas inventories, emissions reduction projects etc.

- The aeroplane operator shall engage an accredited verification body for the verification of its annual Emissions Report

- A verification body shall conduct the verification according to ISO 14064-3:2006, and the CORSIA-specific requirements described in Annex 16, Volume IV, Appendix 6

ISO 14064-3:2006 **+** ICAO Annex 16, Volume IV, APP 6 **=** Requirements for conducting CORSIA verification

- 12 stages involving three key participants:
    - the verification body, the aeroplane operator and the State.

- the verification process conducted by the verification body and appointed team
    - involves 10 steps up to the submission of a final Verification Report to the aeroplane operator and the State.

- Following submission of the Verification Report to the State,
    - the State will conduct an order of magnitude check in accordance with the timeline as defined in Annex 16, Volume IV, Appendix 1.
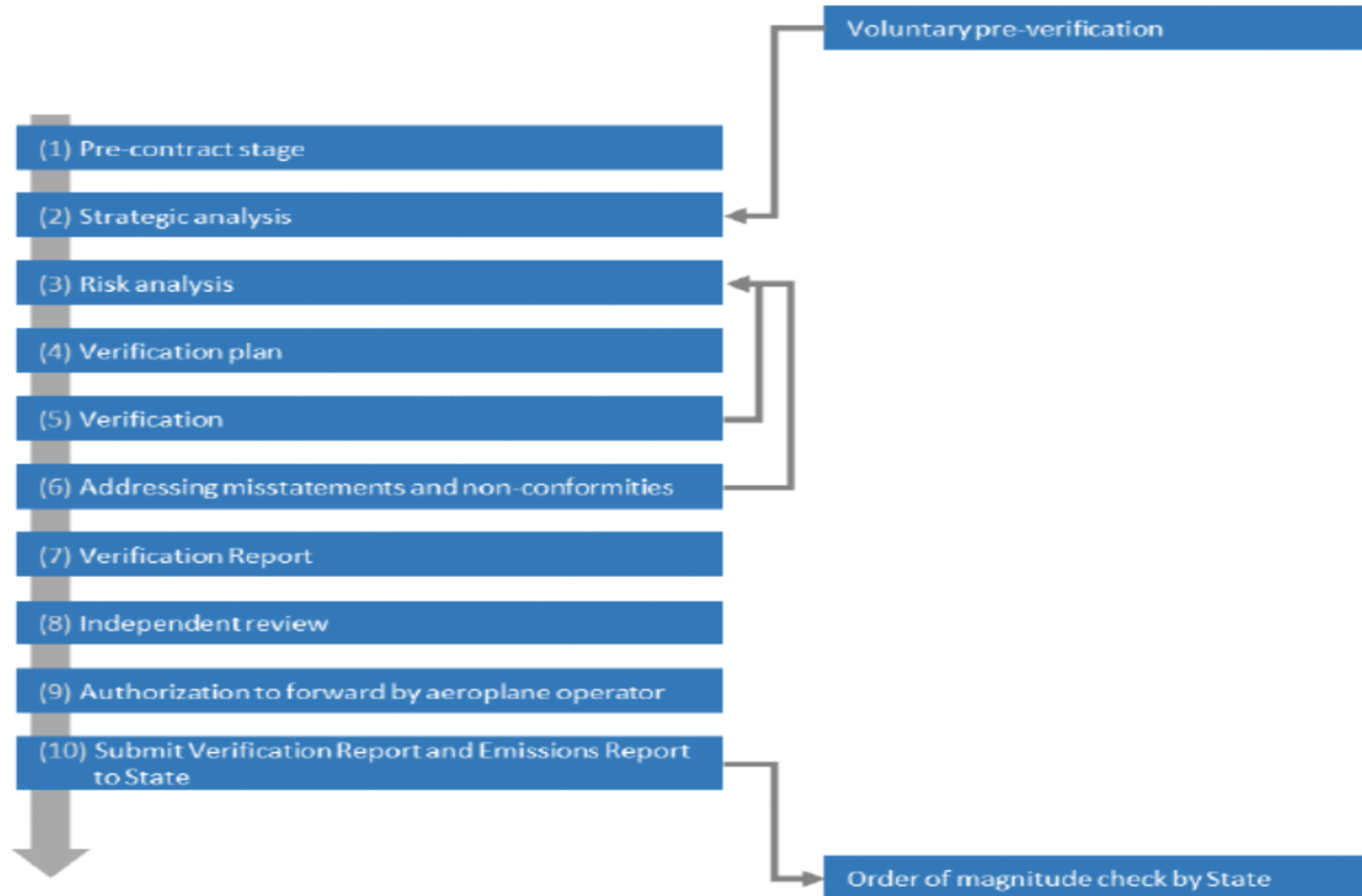
(1) Pre-contract stage

– conditions for verification

– Specified by the contractual terms of engagement between the aeroplane operator and the verification body :

- state the type of report being verified (in this case the Emissions Report) and
- requirements under Annex 16, Volume IV, Appendix 6, 2.12.

(2) Strategic analysis

– To check if there is a sufficient level of understanding to assess the scope and complexity of the verification

(3) Risk analysis

– The assessment of sources and the magnitude of potential errors, omissions and misrepresentations related to the validation or verification activities.

(4) Verification Plan

– Drafted by the Verification Body and covers:

- Verification programme;
    - AO, verification objective; scope, language, team responsibilities, site visit arrangements, on & off-site activities, list of documents)
- Test plan for control activities;
    - Scope and method of testing- e.g. IT controls, EMP procedures
- Data sampling plan
    - Scope and methods, specific data points e.g. flight logs, fuel uplift statements

(5) Verification

– Implementing the verification plan

– Use of standard auditing techniques e.g. interviews, document reviews

(6) Addressing misstatements and non-conformities

– The aeroplane operator will correct all misstatements and non-conformities discovered during the verification.

(7) Verification Report

– Drafted by the Verification Body

(8) Independent review

- Done by an independent reviewer before submission of the Emissions Report to the State;
  - All documentation of the verification engagement as well as the Verification Report
  - All identified errors have to be corrected
  - Aditional final check essential for the verification body and the aeroplane operator
  - The independent reviewer will not be part of the verification team

(9) Authorization to forward Emissions Report

- by the aeroplane operator.

(10) Submission of Verification Report and Emissions Report

- Misstatements and non-conformities

- Assessing materiality

- Completing the Verification Report and statement

ICAO ENVIRONMENT

MISSTATEMENT:
Error, omission, misrepresentation

NON-CONFORMITIES:
Act or omission or an act that is not in accordance with EMP

may cause ←

Examples

- Missing flights in the sequence of flights
- Non addressed data gaps as missing fuel uplift
- Implausible data, such as:
  - Fuel uplifts larger than tank capacity
  - Block-on fuel higher than Block-off fuel
  - Wrong unit, etc.

Examples

- Incorrect application of the fuel use monitoring methods
- Incorrect application of the CERT
- Incorrect version of the EMP used
- Required quality procedures not followed, etc.

AO will correct all misstatements and non-conformities discovered during verification

- ## Materiality
  - refers in CORSIA to the concept that individual misstatements and non-conformities, or the aggregation of them, could affect the correct amount of CO_2 emissions stated in the Emissions Report.
  - A specific piece of information is considered to be material if, by its inclusion or exclusion, it can influence the emissions calculation or actions or decisions taken based on it.
    - In other words, materiality is linked to the quality of the Emissions Report and therefore its acceptance.

- ## It is the responsibility of a verifier:
  - To identify any errors, omissions and misrepresentations in the Emissions Report; and
  - To determine whether they fall within the materiality threshold.

Item	Verification	Reported value	Verification body's value	Difference	Materiality
Flight 1	Incorrect fuel uplift	50	42	8	3.48%
Flight 2	Correct	12	12	0	
Flight 3	Incorrect block-on fuel	15	25	-10	-4.35%
Flight 4	Incorrect fuel uplift	52	42	10	4.35%
…	…	…	…	…	…
Total		230	222	8	3.48%

$$\frac{\text{Difference}}{\text{Total Reported value}} = \text{Materiality}$$

- It is the responsibility of a verifier:
  – To identify any errors, omissions and misrepresentations in the Emissions Report; and
  – To determine whether they fall within the materiality threshold.
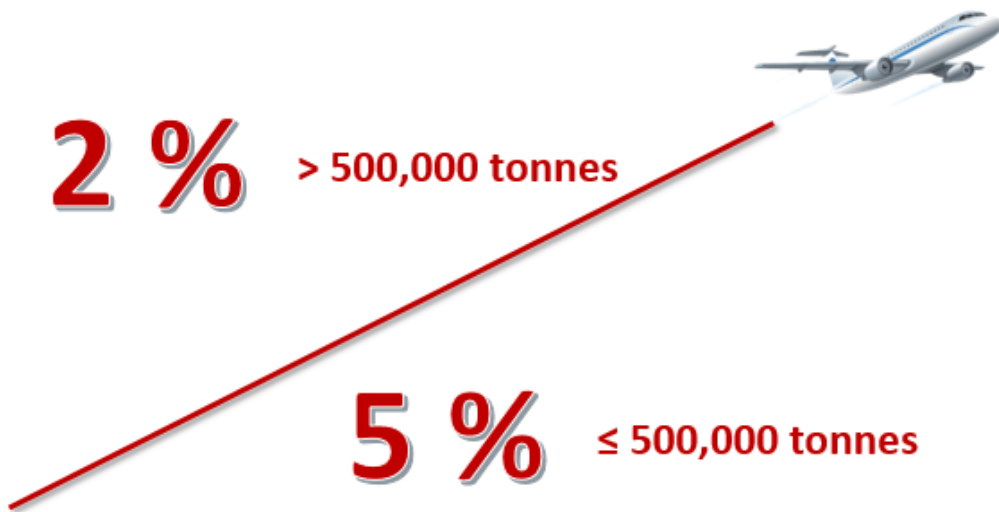
- The following materiality thresholds shall be applied:
  – 2% for aeroplane operators with annual emissions on international flights above 500 000 tonnes of CO_2;
  – 5% for aeroplane operators with annual emissions on international flights equal of less than 500 000 tonnes of CO_2;

- Contents of the VR are provided in the Annex 16, Volume IV, Appendix 6, 3.10.1
  - Includes all verification-related information
- CORSIA specific content:
  - Determination of compliance of the Emissions Report with the Emissions Monitoring Plan
  - Determination of any non-compliances of the Emissions Monitoring Plan with SARPs

VERIFIED AS NOT SATISFACTORY

VERIFIED AS SATISFACTORY

✓ NO misstatements and/or non-conformities

OR

VERIFIED AS SATISFACTORY
with comments

✖ Includes material misstatements and/or non-conformities;

✖ The scope of verification too limited;

✖ No sufficient confidence in data.

→ **Advise the AO to contact the State**

✓ Includes non-material misstatements and/or non-conformities;

✓ Specify the misstatements and non-conformities.

- The objective of the State's order of magnitude check of an aeroplane operator's Emissions Reports is to assess the completeness of data reported by the operator

- For an operator with an Emissions Report verified as "satisfactory", the order of magnitude check will take approximately 3 hours

Reference: Annex 16, Volume IV, Part II, Chapter 2, 2.4.1

Table 3-9 of the ETM provides checklist for States' order of magnitude check of Emissions Reports

Main sections:
- Aeroplane Operator
- Emissions Report information
- Aeroplane fleet
- OPTION 1: State pairs
- OPTION 2: Aerodrome pairs
- Data gaps
- Verification body
- Change of data by State
- Communication with aeroplane operator
- Communication with verification body

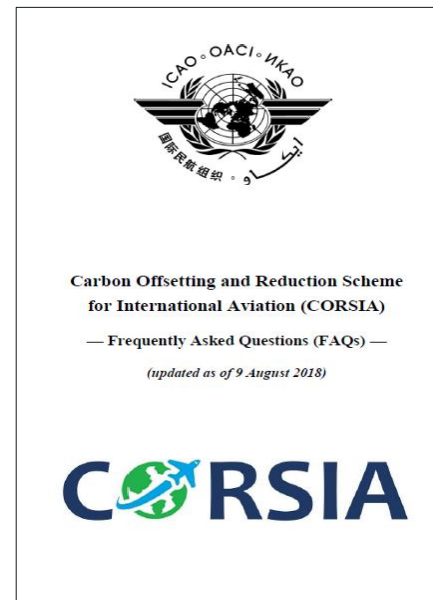| No.	Question / Issue	Additional Information	Status: OK/Yes/No /Not Applicable	Notes and Results of Checks
	Aeroplane Operator			
1	Aeroplane Operator/Verification Body both separately submit Emissions Report and Verification Report. Is the content of both submissions identical?	Minimum check: reported fuel consumption and number of flights. Get back to Aeroplane Operator in case of deviations.		
2	Is the name of the Aeroplane Operator given and unambiguous?	Ensure unambiguous identification of Aeroplane Operator. Get back to Aeroplane Operator in case of uncertainties.		
3	Is there a valid ICAO designator for Aeroplane Operating Agencies? Does it have the correct character length?	Ensure unambiguous identification of Aeroplane Operator. Get back to Aeroplane Operator in case of uncertainties.		
4	Basic information (address, AOC etc.) plausible?	Ensure unambiguous identification of Aeroplane Operator. Get back to Aeroplane Operator in case of uncertainties.		

Frequently Asked Questions

A selection of Frequently Asked Questions (FAQs) on CORSIA verification and related responses is available for download via the CORSIA webpage: www.icao.int/corsia

Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)

— Frequently Asked Questions (FAQs) —

(updated as of 9 August 2018)

- FAQ 3.84: Is a third-party verification needed when using the ICAO CORSIA CERT?

    - *Yes, an aeroplane operator shall engage a third-party verification body for the verification of its annual Emissions Report also when the ICAO CORSIA CERT has been used for generating an Emissions Report.*

    - Reference in Annex 16, Volume IV: Part II, Chapter 4, 2.4.1.

- FAQ 3.88: How much time is normally required for the third-party verification?

    - The time required for the verification process will vary on a case by case basis. The time required relates to, e.g., the size of the operator and whether simplified procedures, such as the ICAO CORSIA CERT, have been used.

- FAQ 3.89: Who pays for the third-party verification and what will be the price? Is a price list included in the list of verification bodies to be compiled by ICAO?

  – *An aeroplane operator will be responsible for covering the cost of the third-party verification of its Emissions Reports and Emissions Unit Cancellation Reports.*

  – *Details of the verification (including the price of the verification service) will be agreed and included in the contract between an aeroplane operator and a verification body.*

- FAQ 3.90: Who accredits the verification body?

    – Accreditations are granted by national accreditation bodies. National accreditation bodies are required to work in accordance with ISO/IEC 17011 (Conformity assessment – General requirements for accreditation bodies accrediting conformity assessment bodies).

- FAQ 3.91: Can an aeroplane operator become a verification body?

    – No. The verification body is required to be accredited to ISO 14065, but not the aeroplane operator. The verification body must be independent from the aeroplane operator, so even if an operator were to be certified to ISO 14065, it could not undertake the verification of its own Emissions Report.

- FAQ 3.92: How can an aeroplane operator identify an accredited verification body?

  – *States are required to submit to ICAO a list of nationally-accredited verification bodies. ICAO will compile this information, and make available a list of verification bodies accredited in each State as a part of the ICAO document entitled "CORSIA Central Registry (CCR): Information and Data for Transparency" that will be available on the ICAO CORSIA website.*

  – *An aeroplane operator may consult this list in order to identify and contract a verification body for the verification of the Emissions Report.*

- FAQ 3.93: Does the verification body have to be from the administrating State?

  – *An aeroplane operator may engage a verification body accredited in another State, as long as the State in which the aeroplane operator has been attributed to recognises this accreditation.*

  – Reference in Annex 16, Volume IV: Part II, Chapter 2, 2.4.2.

- FAQ 3.94 What if there is no national accreditation body in a State?

  – *An aeroplane operator may engage a verification body accredited in another State, subject to rules and regulations affecting the provision of verification services in the State to which the aeroplane operator is attributed.*

  – *Reference in Annex 16, Volume IV: Part II, Chapter 2, 2.4.*

- FAQ 3.97: What may a witness audit involve during the accreditation process of a verification body?

  – The accreditation process of a verification body normally involves a witness audit where the NAB monitors the verification approach taken by the witnessed verification body during an actual audit.

- FAQ 3.101: Can the independent review be outsourced to another verification body?

  – No. Outsourcing within the Annex 16, Volume IV refers to contracted external verifiers who are part of the verification body and therefore covered by the accreditation.

- FAQ 3.102: To avoid conflicts of interest, the leader of the verification team cannot undertake more than six verifications without a three consecutive year break. What if the leader performs three verifications, stops for one year, and then performs another three verifications?

  – The requirement to take a three consecutive year break also applies in cases where the six annual verifications are not consecutive.

  – Therefore, a three consecutive year break will still be required if the leader performs three verifications, stops for one year, and then performs another three verifications.

Questions?

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