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Namibia Civil Aviation Authority

Aviation Directive (AD)

1/2/2-1

Airworthiness Department

February 2021

CORSIA: Approval of Emissions Monitoring Plan and Submission of Emissions data to ICAO

CONTENTS

1 LEGAL AUTHORITY

Pursuant to section 38 (6) of the Civil Aviation Act, "the Executive Director may issue an Aviation Directive (" AD") comprised of a permission, approval or procedure, or the imposition of a condition, restriction or prohibition which the Executive Director believes on reasonable grounds to be –

a) consistent with the objectives of applicable regulatory requirements, procedures, or documents; and

b) necessary and expedient to better achieve the objects of the Act".

This AD sets in place requirements for the approval of CORSIA Emissions Monitoring Plans (EMPs) and for the submission of Emissions Report by the Namibia Civil Aviation Authority to ICAO.

2 BACKGROUND

The current Civil Aviation Regulations (NAMCARs) of 2001 as amended do not provide for a mechanism for the approval of Emissions Monitoring Plans (EMPs) and the submission of Emissions data from qualifying Aeroplane Operators, to the Namibia Civil Aviation Authority (NCAA). This is an Annex 16 Volume IV standard requirement for which a draft regulation, NAMCAR Part 95 – Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) has been developed. As the NAMCAR Part 95 regulations are still in draft form, this Aviation Directive aims to meet the timelines set out in Annex 16, Volume IV Appendix 1.

3 PURPOSE

To provide the necessary guidelines for the participation in CORSIA (Carbon Offsetting and Reduction Scheme for International Aviation) in the absence of promulgated regulations. This will enable the NCAA to meet the timelines for submission of Emissions data as set out in Annex 16, Volume IV Appendix 1.

4 APPLICABILITY

The particulars of this Aviation Directive (AD) are set out in "**6 SCHEDULE"** of this directive, and shall apply to a Namibian aeroplane operator that-

a) produces annual CO_2 emissions greater than 10,000 tonnes from the use of an aeroplane with a maximum certificated take-off mass (MCTOM) greater than 5 700 kg conducting international flights on or after 1 January 2019; and

The particulars of this Aviation Directive (AD), shall not be applicable to—

i) a humanitarian flight;
ii) a medical flight; and
iii) a firefighting flight.

5 EFFECTIVE DATE

This AD will come into force on the **12th February 2021** and will be applicable until the Minister of Works and Transport gazettes the NAMCAR Part 95 – Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) regulations.

Issued By:

---------- Date : 10 Febr. 2021

GORDON ELLIOT
INTERIM EXECUTIVE DIRECTOR: NAMIBIA CIVIL AVIATION AUTHORITY

NAMIBIA CIVIL AVIATION AUTHORITY NCAA 11 FEB 2021 PRIVATE BAG 12003 AUSSPANNPLATZ WINDHOEK OFFICE OF THE EXECUTIVE DIRECTOR

6 SCHEDULE: -

6.1 ACTION REQUIRED FOR APPROVAL OF EMISSIONS MONITORING PLAN

1. An aeroplane operator shall—

a) develop and submit for approval by the Executive Director, an Emissions Monitoring Plan (EMP) as prescribed in Appendix 1 of this Aviation Directive (AD).

b) if a such an operator is a new entrant, submit an Emissions Monitoring Plan (EMP) to the Executive Director for approval within three months of falling within the scope of applicability; and

c) submit any material or substantial change, as set out in Appendix 3 of this Aviation Directive (AD), on information contained in an Emissions Monitoring Plan (EMP) to the Executive Director for approval.

2. An aeroplane operator shall inform the Executive Director of any change to an Emissions Monitoring Plan (EMP) even if an aeroplane operator does not consider such change to be a material change.

3. An operator who fails to submit an Emissions Monitoring Plan (EMP) for approval by the Executive Director, while falling under the scope of applicability of this Aviation Directive (AD), commits an offence and shall be liable to a fine as set out in Part 185 of the Namibian Civil Aviation Regulations (NAMCARs) of 2001, as amended.

6.2 ACTION REQUIRED FOR SUBMISSION OF EMISSIONS DATA TO ICAO

Upon approval of the Emissions Monitoring Plan(EMP), an aeroplane operator shall, develop an Emissions Report(ER), as prescribed in Appendix 2 of this Aviation Directive (AD)., to be submitted to a Verification Body(VB), which shall intern produce a Verification Report(VR).

The Verification Body (VB) that is to be used by an aeroplane operator, shall be one that is recognized by ICAO as per ICAO document, "CORSIA Central Registry (CCR): Information and Data for Transparency", available on the ICAO CORSIA website.

The Emissions Reports alongside their Verification Reports shall be submitted as per the timelines prescribed in Part II, Chapter 1, 1.5, of Annex 16 Vol. IV.

The aeroplane operator and the Verification Body (VB) shall each submit an Emissions Report (ER) and a Verification Report (VR) to the NCAA.

The NCAA shall conduct an Order of Magnitude Check and submit the emissions data to ICAO.

7 CONTACT

Aeroplane Operators requiring further information should contact –

Senior Manager Airworthiness – Mr. Robert Mathe

mather@ncaa.com.na

+264832352449

And

CORSIA State Focal Point – Mr. Mateus Shaningwa

shaningwam@ncaa.com.na

+264832352442

APPENDIX 1: TEMPLATE OF EMISSIONS MONITORING PLAN (FROM AEROPLANE OPERATOR TO NCAA)

This section provides a template version of the Emissions Monitoring Plan as described in Annex 16, Volume IV, Appendix 4.

Content of the Emissions Monitoring Plan

EMISSIONS MONITORING PLAN (EMP)

CONTENTS

Note.— The templates of the Emissions Monitoring Plan, the Emissions Report and the CORSIA eligible fuels supplementary information to the Emissions Report are available on the ICAO CORSIA website.

Information Template for the Provision of Emissions Monitoring Plan Records

Template

Template provided	
Version (publication	

Note: For the purpose of this template, international flight is defined as in Annex , Volume IV, Part II, Chapter 1, 1.1.2, and Chapter 2,

1 VERSION CONTROL OF EMISSIONS MONITORING PLAN

a) Version No.

Please enter version number of the current version.

Version

If necessary, please fill in the

Versi	pr	t	Emis Moni Plan is	Chapters where modifications have been made. Brief explanation of amendments.

2 AEROPLANE OPERATOR IDENTIFICATION AND DESCRIPTION OF ACTIVITIES

(Annex 16, Volume IV, Appendix 4, 2.1)

a) Name of the aeroplane operator

Please enter the name of the aeroplane operator. This name should be the legal entity engaged in the aeroplane operation, or the legal entity seeking to be the single entity for the CORSIA administration under a parent-subsidiary arrangement.

Address of the aeroplane operator

Please enter the address of the aeroplane operator.

Addres	
State/Province/Regio	
Postcod	
C	

Legal

Please enter a contact of a representative who is legally resonsible for the aeroplane operator for official correspondence.

First	
Su	
Email	
Telephone	
Address	
Address	
State/Province/Regio	
Postcod	
C	

Aircraft identification of the aeroplane operator for international flights (Item 7 of the flight plan)

Select the options planned to be used for reporting flight attribution to the aeroplane operator.

ICAO

Does Item 7 (aircraft identification) of the flight plan begin with an ICAO Designator according to Doc 8585 — Designators for Aircraft Operating Agencies, Aeronautical Authorities and Services? If yes, please select "ICAO Designator" from the drop down list and complete d2).

Registration

Does Item 7 (aircraft identification) of the flight plan correspond to the nationality or common mark, and registration mark, as explicitly stated in an AOC (or equivalent)? If yes, please select "Registration marks" from the drop down list and complete d3).

ICAO Designator and registration marks

d1) Responsibility under the CORSIA

d2) ICAO Designator

Provide the ICAO Designator (or Designators) used for Air Traffic Control purposes, as listed in Doc 8585 — Designators for Aircraft Operating Agencies, Aeronautical Authorities and Services, *if the aeroplane operator has an ICAO Designator(s).*

d3) List of registration marks

Please list all aeroplanes including the nationality or common mark, and registration mark, of the aeroplane. If your fleet exceeds 30 registration marks, please attach a separate document to the EMP.

No.	Registration mark	No.	Registration mark	No.	Registration mark
1		11		21	
2		12		22	
3		13		23	
4		14		24	
5		15		25	
6		16		26	
7		17		27	
8		18		28	
9		19		29	
10		20		30	

d4) Additional information on flight attribution

Please provide additional information to support the approach followed for flight attribution.

e) Do you have an air operator certificate (AOC)?

The air operator certificate (AOC) is a certificate authorizing an operator to carry out specified commercial air transport operations i.e., a document issued to an aeroplane operator by a Civil Aviation Authority which affirms that the aeroplane operator in question has the professional ability and organization to secure the safe operation of the aeroplane for the aviation activities specified in the certificate.

e1) Identification code of the AOC

Please enter the unique identification number of the air operator certificate of the issuing Civil Aviation Authority. If you hold several AOCs, list the additional certificates in the field "Information about the certificate".

e2) Date of issue

Please enter the date on which the air operator certificate was issued. Use the entry format yyyy-mm-dd.

e3) Date of expiry

Please enter the date on which the air operator certificate expires (if applicable). Use the entry format yyyy-mm-dd.

Competent authority for the AOC

Please enter the address of the authority that issued the AOC.

Name of the	
Address	
State/Province/Region:	
Postcode	
C	

Information about the certificate

Please give information about the scope of aviation activities the AOC permits to carry out. Are there any temporal, regional or other restrictions? Have any obligations been imposed?

Please attach the current versions of the AOCs covered in this Emissions Monitoring Plan; please confirm

Description of the ownership structure of your company

Details of ownership structure relative to any other aeroplane operators with international flights, including identification of whether the aeroplane operator is a parent company to other aeroplane operators with international flights, a subsidiary of another aeroplane operator (or operators) with international flights and/or has a parent and or subsidiaries that are aeroplane operators with international flights. Please describe the ownership structure of the operating company.

Parent-subsidiary relationship recognized as a single entity for the CORSIA administration?

Please specify whether the aeroplane operator is in a parent-subsidiary relationship which should be recognized as a single entity for the CORSIA

Name of the subsidiary company(ies)

If your company heads a group, please specify the names of the subsidiaries which also carry out international aviation activities and select how aircraft identification of the subsidiary for international flights is managed. Where appropriate, please attach additional explanatory files to the Emissions Monitoring

Name of the subsidiary	Aircraft identification of the subsidiary for international flights Item 7 of the flight

f3) Confirmation that parent and subsidiary(ies) are administered by the same State

If the aeroplane operator in a parent-subsidiary relationship seeks to be considered a single aeroplane operator for purposes of the CORSIA, confirm that the parent and subsidiary(ies) are subject to CORSIA administration by the same State.

Confirmation that parent and subsidiary(ies) are wholly-owned by the parent

If the aeroplane operator in a parent-subsidiary relationship seeks to be considered a single aeroplane operator for purposes of the CORSIA, confirm that the subsidiary(ies) are wholly-owned by the parent.

Additional information on the subsidiary(ies)

Step 1: On the basis of the provided information in f3), please specify the aircraft identification of the subsidiary(ies) for international flights (Item of the flight plan) according to the same level of detail as requested in d) (e.g., state ICAO Designator or list registration marks). Please indicate how flights are assigned to the parent/subsidiary operation.
Step 2: Please specify whether the are any other items covered in this Emissions Monitoring Plan where the subsidiary(ies) deviate from the monitoring of the

In case of insufficient space below, please attach additional documents to your Emissions Monitoring Plan submission.

Description of the aeroplane operator´s activities

Please describe the aeroplane operator´s activities. Provide details of main State pairs, typical leasing arrangements, scheduled/non-scheduled, pax/cargo/executive and geographic scope of operations.

Contact

Please enter the contact information of the person within the aeroplane operator who is responsible for the Emissions Monitoring Plan.

First	
Su	
Email	
Telephone	
Address	
Address	
State/Province/Region	
Postcode	
C	

h1) Alternate contact person

Please enter the contact information of an additional person within the aeroplane operator who is responsible for the Emissions Monitoring Plan.

First	
Su	
Email	
Telephone	
Address	
Address	
State/Province/Regio	
Postcode	
C	

3 FLEET AND OPERATIONS DATA

(Annex 16, Volume IV, Appendix 4, 2.2)

a) Fleet declaration

List all aeroplane types, including owned aeroplanes as well as leased aeroplanes, with an MTOM greater than *5 700 kg (12 566 lbs) operated on international flights, as defined in Annex 16, Volume IV, Part II, Chapter 1, 1.1.2, and Chapter 2, 2.1, at the time of submission of the Emissions Monitoring Plan as specified in Doc 8643* — Aircraft Type Designators.

Additional information about Doc 8643 — Aircraft Type Designators *can be found at:* http://www.icao.int/publications/DOC8643/Pages/Search.aspx

(*) *For the purposes of this template, the fuel total could include the sum of equivalent fuels.*

No.	ICAO type designator	Fuel type (*)	Number of aeroplanes
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

No.	ICAO type designator	Fuel type (*)	Number of aeroplanes
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
31			
32			
33			
34			
35			
36			
37			
38			
39			
40			

b) Additional aeroplane types

Will new aeroplane types always be monitored using the same methods as aeroplane types identified in section 4 of this plan?

Details about the procedure for defining the monitoring methodologies for additional aeroplane types

Define clearly the methods which are used for monitoring new aeroplane types that are not already in use.

Responsible	
Description of	
Location of	

c) Changes in aeroplane fleet and fuel type

Please provide information on the procedure for how changes in aeroplane fleet and fuel used will be tracked and integrated in emissions monitoring.

Responsible department	
Description of procedure	
Location of	

Completeness of all **roplanes and all**

Please provide information to ensure completeness of *he means that will be used to track/document each aeroplane operated and the specific flights of the aeroplane*

Responsible department	
Description of procedure	
Location of	

d) List of State pairs operated by the aeroplane operator

*Please list **all** State pairs where international flights are currently operated. If applicable, please list State pairs from the State of origin to the State of destination (*). If your State pairs exceed 50, please attach a separate document to the Emissions Monitoring Plan.*
(*) For example, flights from State A to State B will require inserting a State pair A-B in the list; flights from State B to State A will require inserting a State pair B-A in the list.

No.	State of origin	State of destination
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
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31		
32		
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34		
35		
36		
37		
38		
39		
40		
41		
42		
43		
44		
45		
46		
47		
48		
49		
50		

f) Determination of all international flights

Please provide information on procedures for determining which aeroplane flights meet the definition of international flights for the purpose of Annex 16, Volume IV, and therefore are subject to the emissions monitoring requirements subject to applicability of Annex 16, Volume IV, Part II,

Responsible	
Description of	
Location of	

Determination of ational flights with offsetting requirements

Please provide information he procedures for determining which international flights are subject to CO2 offsetting requirements under CORSIA as described in x 16, Volume IV, Part II, Chapter 3,

Responsible	
Description of	
Location of	

h) Determination of flights with no monitoring requirements

If the aeroplane operator conducts any domestic flights and/or humanitarian, medical or firefighting international operations that would not be subject to the emissions monitoring requirements, information on the procedures for how those operations will be separated from those subject to the emissions monitoring requirements.

Responsible	
Description of	
Location of	

4 METHODS AND MEANS FOR CALCULATING EMISSIONS

(Annex 16, Volume IV, Appendix 4, 2.3)

a) Fuel Use Monitoring Method and / or the ICAO CORSIA CO_2 Estimation and Reporting Tool (CERT)

Please specify whether the aeroplane operator plans to use one or more Fuel Use Monitoring Method(s) (as described in Annex 16, Volume IV, Appendix 2) and / or the ICAO CORSIA CO_2 Estimation and Reporting Tool (CERT) (as described in Annex 16, Volume IV, Appendix 3) for the 2019-2020 and 2021-2035 periods. When deciding on the monitoring method, consideration should be given to whether the aeroplane operator is eligible for the same method in the 2019-2020 period as in the 2021-2035 period.

For the reporting years 2019 and 2020 (in accordance with Annex 16, Volume IV, Part II, Chapter 2, 2.2.1.2)

- *a Fuel Use Monitoring Method is mandatory for aeroplane operators with annual emissions equal to or above 500 000 tonnes of CO_2 from international flights, as defined in Annex 16, Volume IV, Part II, Chapter 1, 1.1.2 and Chapter 2, 2.1.*
- *an aeroplane operator with annual CO_2 emissions from international flights, as defined in Annex 16, Volume IV, Part II, Chapter 1, 1.1.2 and Chapter 2, 2.1 of less than 500 000 tonnes, shall use either a Fuel Use Monitoring Method or the ICAO CORSIA CO_2 Estimation and Reporting Tool (CERT).*

For the reporting years 2021 until 2035 (in accordance with Annex 16, Volume IV, Part II, Chapter 2, 2.2.1.3)

- *a Fuel Use Monitoring Method is mandatory for aeroplane operators with annual emissions equal to or above 50 000 tonnes of CO_2 from international flights subject to offsetting requirements, as defined in Annex 16, Volume IV, Part II, Chapter 1, 1.1.2, and Chapter 3, 3.1. For international flights not subject to offsetting requirements, the aeroplane operator shall use either a Fuel Use Monitoring Method or the ICAO CORSIA CO_2 Estimation and Reporting Tool (CERT).*
- *an aeroplane operator with annual emissions from international flights subject to offsetting requirements, as defined in Annex 16, Volume IV, Part II, Chapter 1, 1.1.2, and Chapter 3, 3.1, of less than 50 000 tonnes, shall use either a Fuel Use Monitoring Method or the ICAO CORSIA CO_2 Estimation and Reporting Tool (CERT).*

Option for simplified monitoring on routes not subject to offsetting requirements

Aeroplane operators which use a Fuel Use Monitoring Method (as described in Annex 16, Volume IV, Appendix 2) for the 2021-2035 period have an option for simplified monitoring with the ICAO CORSIA CO Estimation and Reporting Tool (CERT) (as described in Annex 16, Volume IV, Appendix 3) on State pairs not subject to offsetting requirements. Please specify whether the aeroplane operator intends to use this

Fuel Use Monitoring Methods

Please provide information on the use of different monitoring methods per sub fleet (by ICAO aircraft type designator).

Monitoring	Applicable for the following sub-fleets of aeroplanes by ICAO aircraft type designator	201	202
M			
M			
Block-off /			
Fu			
Fuel Allocation Bloc			

Simplified n

Please provide information se of the ICAO CORSIA Estimation and Reporting Tool (CERT).

201	202

c1) Estimated annual CO_2 emissions

Please demonstrate the eligibility to use the ICAO CORSIA CO 2 Estimation and Reporting Tool (CERT) by providing an estimate of fuel use in order to calculate an estimate of the total CO 2 emissions for international flights, as defined in Annex 16, Volume IV, Part II, Chapter 2, 2.1. If the ICAO CORSIA CERT was used to estimate the CO 2 emissions, enter the information in the field "Estimate from the ICAO CORSIA CERT". For 2019, the estimate can be based on data within the 2017-2018 period or another appropriate period.

Fue	Annual fuel use (in tonnes)	Fuel conversion	Ann emissions (in
Estimate from the ICAO CORSIA CERT			

For the purposes of this template, the fuel total could include the sum of equivalent fuels.

Supporting information on estimation

Provide supporting information on how the estimation of emissions in c1) has been determined, including on how fuel use has been estimated. In case the ICAO CORSIA CO_2 Estimation and Reporting Tool (CERT) has been used, a copy of the tool has to be attached and the input method (i.e., Great Circle Distance or Block Time) has to be stated.

Input method for reporting

Please specify for the ICAO CORSIA CO Estimation and Reporting Tool (CERT) whether Great Circle Distance or Block Time is used to estimate emissions for the reporting periods.

Separation of parent-subsidiary related emissions in 2019-2020

If the aeroplane operator is in a parent-subsidiary relationship and intends to be considered a single aeroplane operator for purposes of the CORSIA, identify the procedures that will be used for maintaining separate 2019-2020 fuel and emissions monitoring of the various corporate entities for the purpose of establishing individual 2019-2020 reference CO emissions for the parent and subsidiary (or subsidiaries).

4.1 Fuel Use Monitoring Method: METHOD A

a) Time of measurement and corresponding documentation for the chosen method

Please specify the exact points in time for the three measurements necessary to calculate the fuel consumption per flight and outline the measurement equipment and procedures for recording, receiving, transmitting and storing of fuel data. Please provide a reference to the corresponding documentation.

Fuel density for international flights

Please provide information on the procedures for determing and recording fuel density values (standard or actual) as used for operational and safety reasons and provide reference to the relevant internal documentation. These procedures shall be applied when calculating the fuel consumption for the

4.2 Fuel Use Monitoring Method: METHOD B

a) Time of measurement and corresponding documentation for the chosen method

Please specify the exact points in time for the three measurements necessary to calculate the fuel consumption per flight and outline the measurement equipment and procedures for recording, receiving, transmitting and storing of fuel data. Please provide a reference to the corresponding documentation.

Fuel density for international flights

Please provide information on the procedures for determing and recording fuel density values (standard or actual) as used for operational and safety reasons and provide reference to the relevant internal documentation. These procedures shall be applied when calculating the fuel consumption for the

4.3 Fuel Use Monitoring Method: BLOCK-OFF / BLOCK-ON

a) Time of measurement and corresponding documentation for the chosen method

Please specify the exact points in time for the two measurements necessary to calculate the fuel consumption per flight and outline the measurement equipment and procedures for recording, receiving, transmitting and storing of fuel data. Please provide a reference to the corresponding documentation.

4.4 Fuel Use Monitoring Method: FUEL UPLIFT

a1) Measurement of the block hours (per flight) and corresponding documentation for the chosen method

Please specify the exact points in time for the measurement of block hours per flight (necessary to calculate the fuel consumption per flight for international flights with zero uplift and for the following flight) and outline the measurement equipment and procedures for recording, receiving, transmitting and storing of fuel data. Please provide a reference to the corresponding documentation.

Assignment and adjustment for flights with zero fuel

Please explain the data handling and calculations necessary to meet the adjustment requirement for flights with zero fuel

F

Please specify which fuel uplift record will

Fuel density for international

Please provide information on the procedures for determing and recording fuel density values (standard or actual) as used for operational safety reasons and provide reference to the relevant internal documentation. These procedures shall be applied when calculating the fuel for

4.5 Fuel Use Monitoring Method: FUEL ALLOCATION WITH BLOCK HOUR

a) Option for calculating the specific fuel burn

Please choose from the options listed below and enter the ICAO type designators and the model for each option. Should one option for all aeroplane types be used, simply enter "all".

		ICAO aircraft type designator / model
☐	Option for aeroplane operators which can clearly distinguish between fuel uplifts for international and domestic flights on a flight by flight basis. In case this option is selected, please also complete section 4.4 (Fuel uplift, a1 and a2), as this monitoring method is used to calculate the total fuel burn on international flights for a specific ICAO type designator or aircraft model.	
☐	Option for aeroplane operators which cannot clearly distinguish between international and national fuel uplifts on a flight by flight basis.	

Measurement of the block hours (per flight) and corresponding documentation for the chosen method

Please specify the exact points in time for the measurement of block hours per flight and outline the measurement equipment and procedures for recording, receiving, transmitting and storing of fuel data. Please provide a reference to the corresponding documentation.

Fu

Please specify which fuel uplift record will be used.

Fuel density for international flights

Please provide information on the procedures for determing and recording fuel density values (standard or actual) as used for operational and safety reasons and provide reference to the relevant internal documentation. These procedures shall be applied when calculating the fuel use for the

4.6 ICAO CORSIA CO2 ESTIMATION AND REPORTING TOOL (CERT)

(Annex 16, Volume IV, Appendix 3)

a) Description of relevant input data

Please specify whether Great Circle Distance and/or Block Time is used as input into the ICAO CORSIA CERT. If applicable, please specify the procedures for determining Block Time and potentially aggregating them to be used in the ICAO CORSIA CERT. This includes specifying the exact points in time for the two time measurements per flight necessary to calculate the Block Time.

5. DATA MANAGEMENT, DATA FLOW, CONTROL SYSTEM, RISK ANALYSIS AND DATA GAPS

(Annex 16, Volume IV, Appendix 4, 2.4)

a) Description of data management

Please provide a description of each step in the data flow and data processing, including controls to assure data quality, beginning with the source data up to the Emissions Report. Please reference the responsible departments. Please attach a data flow chart to the Emissions Monitoring Plan summarizing the systems used to record, store and control the quality of data associated with the monitoring and reporting of emissions.

Threshold for

If employing a Fuel Use Monitoring Method, please provide a description of the systems and procedures for identifying data gaps and assessing whether the 5 per cent threshold for significant data gaps has been reached (in accordance with Annex 16, Volume IV, Part Chapt

Description of available secondary

Please specify data sources that can be alternatively used for reporting

b2) Handling of data gaps and erroneous data values

Aeroplane operators using a Fuel Use Monitoring Method shall use the ICAO CORSIA CO_2 Estimation and Reporting Tool (CERT) to fill data gaps, in accordance with Annex 16, Volume IV, Part II, Chapter 2, 2.5.1, where the secondary data sources listed above are not available. For

aeroplane operators not using a Fuel Use Monitoring Method, please provide a description of the method that will be used to fill data gaps in the event a secondary data reference source listed above is not available.

Data gaps despite secondary sources

Does the existing data management system allow for data gaps when secondary data sources exist?

Explanations of data gaps for which existing secondary sources cannot be used

Please describe the conditions (e.g., cost, time to resolve, data availability, data quality) under which this occurs.

c) Documentation and record keeping plan

Please specify where process directives are stored. Please indicate the IT system used, if applicable. List of applied data management and IT standards, where relevant.

Explanation of

Data management systems and controls are critical for ensuring data completeness, security, quality and minimizing the risk of a material error or mistatement in the emissions report. Please provide a list of the risks associated with the data management system and the corresponding internal or external control activity(ies) for addressing each.

Revisions of Emissions Monitoring Plan

Please provide information on procedures for identifying: i) material changes to the Emissions Monitoring Plan requiring revision and resubmission to the State and ii) non-material changes to the Emissions Monitoring Plan for disclosure in the Emissions Report.

APPENDIX 2: TEMPLATE OF EMISSIONS REPORT (FROM AEROPLANE OPERATOR TO NCAA)

This section provides a template version of the reporting requirements described in Annex 16, Volume IV, Appendix 5, Table A5-1.

CORSIA EMISSIONS REPORT (ER)

CONTENTS

Template

Template provided	
Version (publication date):	

Note: For the purpose of this template, international flight is defined as in Annex , Volume IV, Part II, Chapter 1, 1.1.2, and Chapter 2,

1 AEROPLANE OPERATOR IDENTIFICATION AND DESCRIPTION OF ACTIVITIES

a) Name of aeroplane operator

Please enter the name of the aeroplane operator. This name should be the legal entity carrying out the aviation activities.

a1) Address of the aeroplane operator

Please enter the address of the aeroplane operator.

Address:	
City:	
State/Province/Region:	
Postcode/ZIP:	
Country:	

a2) Contact person

Please enter the contact information of the person within the aeroplane operator who is responsible for the Emissions Report.

Title:	
First name:	
Surname:	
Email address:	
Telephone number:	
Address line 1:	
Address line 2:	
City:	
State/Province/Region:	
Postcode/ZIP:	
Country:	

a3) Alternate contact person

Please enter the contact information of an additional person within the aeroplane operator who is responsible for the Emissions Report.

Title:	
First name:	
Surname:	
Email address:	
Telephone number:	
Address line 1:	
Address line 2:	
City:	
State/Province/Region:	
Postcode/ZIP:	
Country:	

a4) Legal representative

Please enter a contact address of a representative who is legally resonsible for the aeroplane operator for official correspondence.

Title:	
First name:	
Surname:	
Email address:	
Telephone number:	
Address line 1:	
Address line 2:	
City:	
State/Province/Region:	
Postcode/ZIP:	
Country:	

b) Aircraft Identification of the aeroplane operator for international flights (Item 7 of the flight plan)

Select the options used for reporting flight attribution to the aeroplane operator.

ICAO Designator

Does Item 7 (aircraft identification) of the flight plan begin with an ***ICAO Designator*** *according to Doc 8585 —* Designators for Aircraft Operating Agencies, Aeronautical Authorities and Services*? If yes, please select "ICAO Designator" from the drop down list and complete b1).*

Registration marks

Does Item 7 (aircraft identification) of the flight plan correspond to the ***nationality or common mark, and registration mark****, as explicitly stated in an* ***AOC*** *(or equivalent)? If yes, please select "Registration marks" from the drop down list.* ***ICAO Designator and registration marks***

Responsibility under the CORSIA

ICAO

Provide the ICAO Designator (or Designators) used for Air Traffic Control purposes, as listed in Doc 8585 — Designators for Aircraft Operating Agencies, Aeronautical Authorities and Services *, if the aeroplane operator has an ICAO Designator(s).*

Additional information on flight attribution

If during the monitoring period an additional attribution approach has been used to that identified in section b) and as explained in the EMP, please provide detailed information on the attribution process.

Verification

Contact information of the engaged accredited verification body.

Verification	
First name of	
Surname of	
Email	
Telephone	
Address	
Address	
State/Province/Regi	
Postcod	
(	

Accreditation

Please provide information arding the national accreditation

Authorization based	
Body /	
I	
(	

2 UNDERLYING BASIC INFORMATION OF THE EMISSIONS REPORT

Reporting

Please provide the reporting

End of reporting

Usually the last day of the reporting year, as long as the operator has not ceased flight operations during the reporting year. Use the format yyyy-

Date of

Date on which the Emissions Report was compiled. Use the format yyyy-mm-dd.

V

In case of multiple submissions, please enter the Emissions Report version number.

Current Emissions Monitoring Plan

Please enter the version number of the approved Emissions Monitoring Plan on which this Emissions Report is based.

Approval of the current Emissions Monitoring Plan

Please enter the date of the approval of the Emissions Monitoring Plan. Use the format yyyy-mm-dd.

Emissions Monitoring Plan is valid from

Please enter the date of validity of the current Emissions Monitoring Plan. Use the format yyyy-mm-dd.

Last update of the Emissions Monitoring Plan

Please enter the date of the Emissions Monitoring Plan on which basis this report was created. Use the format yyyy-mm-dd.

e4) Was more than one approved Emissions Monitoring Plan version used during the reporting year?

Please choose "yes" if the Emissions Report is based on more than one Emissions Monitoring Plan.

Expla

Please explain in detail the implications of the use of several Emissions Monitoring Plans during the reporting year.

Previous Emissions Monitoring Plan (if applicable)

Please list the previous Emissions Monitoring Plan version with version number and date of approval (if applicable).

Fuel Use Monitoring Method and / or the ICAO CORSIA CO Estimation and Reporting Tool (CERT)

Please indicate whether the aeroplane operator used the ICAO CORSIA CO Estimation and Reporting Tool (CERT) and whether the tool was used for all international flights or only for international flights not subject to offsetting requirements.

Fuel Allocation with Block Hour

Please indicate whether the aeroplane operator used the Fuel Use Monitoring Method "Fuel Allocation with Block Hour" during the reporting

g1) Underlying aeroplane fuel burn

Please complete the table below with the average fuel burn ratio (AFBR) for each aeroplane type as specified in Doc 8643 — Aircraft Type Designators. *AFBR will be provided in tonnes per hour (rounded to at least three decimal places) for the current reporting year. Additional information about Doc 8643 — Aircraft Type Designators can be found at: http://www.icao.int/publications/DOC8643/Pages/Search.aspx*

No.	ICAO aircraft type designator	Specific fuel burn (in tonnes per hour)
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
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3 AEROPLANE FLEET AND FUEL TYPES

a) Registration of all aeroplanes operated in the reporting year

Please list all aeroplanes with an MTOM greater than 5 700 kg (12 566 lbs) operated on international flights, as defined in Annex 16, Volume IV, Part II, Chapter 1, 1.1.2, and Chapter 2, 2.1, during the reporting period. If necessary, please attach a separate list.
Please enter the ICAO aircraft type designator, as specified in Doc 8643 — Aircraft Type Designators*, the registration marks and state whether the aeroplane is owned or leased. Please mark with an "X" applicable fuel(s) type(s) for each ICAO aircraft type designator (*).*

Additional information about Doc 8643 — Aircraft Type Designators can be found at:

http://www.icao.int/publications/DOC8643/Pages/Search.aspx

(*) For the purposes of this template, the fuel total could include the sum of equivalent fuels.

No.	ICAO aircraft type designators	Registration marks	Owned or leased	Fuel used (*)			
				Jet-A	Jet-A1	Jet-B	AvGas
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
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30							

4 FUEL DENSITY

a) Fuel density

Please specify whether standard and / or actual density was used to determine the fuel uplift in the reporting year.

Consist

Please confirm that the application of density data for CORSIA purposes is fully identical to the actual procedures used for operational and safety

5 REPORTING

a) Aggregation level of reported data

*Please select whether the aeroplane operator reports on a State pair or at an aerodrome pair level as advised by the State. If State pair level is chosen, please continue with **"5.1 Reporting - State pairs"**. If aerodrome pair level is selected, please continue with **"5.2 Reporting - Aerodrome pairs"**.*

5.1 REPORTING - STATE PAIRS

***Explanation:** Please complete the list underneath. All State pairs operated during the reporting year have to be reported.*

***Note I:** Please report both directions between State pairs if applicable (A-B and B-A).*
***Note II:** If you used different type of fuels on the same State pair with different fuel converstion factors, you need to create an identical State pair and report this portion of fuel separately. Please note, emissions from CORSIA eligible fuels are calculated with the fuel conversion factor(s) from corresponding aviation fuels.*
***Note III:** Please also complete the CORSIA eligible fuels supplementary information to the Emissions Report, if CORSIA eligible fuels were used during the reporting period.*

a) Summary of reported international flights and emissions

Total CO_2 emissions from international flights (in tonnes):	
Total CO_2 emissions from flights subject to offsetting requirements (in tonnes):	
Total number of international flights during reporting period:	
Total number of international flights subject to offsetting requirements:	
Total emissions reductions claimed from the use of CORSIA eligible fuels (in tonnes):	

b) Summary of fuel quantities(*) (in tonnes):

(*) For the purposes of this template, the fuel total could include the sum of equivalent fuels.

Jet-A	
Jet-A1	
Jet-B	
AvGas	

b1) CORSIA eligible fuels claimed

If claiming emission reductions from the use of CORSIA eligible fuels, please complete the table below. Supplementary information about the claim is also required, and can be reported using the CORSIA eligible fuels supplementary information template.

(*) For the purposes of this template, the fuel total could include the sum of equivalent fuels.

Fuel type			Total mass of the neat CORSIA eligible fuel (in tonnes)	Approved Life Cycle Emissions values	Emission reductions claimed
Fuel type (e.g. Jet-A) (*)	Feedstock	Conversion process			
Total emission reductions from the use of CORSIA eligible fuel(s) claimed					

c) Table of all State pairs

Please list all State pairs on which international flights were performed and enter the number of flights and the amount of CO_2 emissions.

(*) For the purposes of this template, the fuel total could include the sum of equivalent fuels.

State of	State of		e es	T		Tot of	con	T e i	Su of require

5.2 REPORTING - AERODROME PAIRS

Explanation: *Please complete the list underneath. All aerodrome pairs that were operated during the reporting year have to be reported.*

Note I: *Please report both directions between aerodrome pairs if applicable (A-B and B-A).*
Note II: *If you used different type of fuels on the same aerodrome pair with different fuel conversion factors, you need to create an identical aerodrome pair and report this portion of fuel separately. Please note, emissions from CORSIA eligible fuels are calculated with the fuel conversion factor(s) from corresponding aviation fuels.* ***Note III:*** *Please also complete the CORSIA eligible fuels supplementary information to the Emissions Report, if CORSIA eligible fuels were used during the reporting period.*

Summary of reported international flights and emissions

T emissions from international flights (in tonnes):	
emissions from flights subject to offsetting requirements (in tonnes):	
Total number of international flights during reporting period:	
Total number of international flights subject to offsetting requirements:	
Total emissions reductions claimed from the use of CORSIA eligible fuels (in tonnes):	

Summary of fuel quantities (in

For the purposes of this template, the fuel total could include the sum of equivalent fuels.

CORSIA eligible fuels claimed

If claiming emission reductions from the use of CORSIA eligible fuels, please complete the table below. Supplementary information about the claim is also required, and can be reported using the CORSIA eligible fuels supplementary information template. (*) For the purposes of this template, the fuel total could include the sum of equivalent fuels.

	F				
	F	Fe Conv	Total mass of the CORSIA eligible i	Approve Cycle	Emission
Total emission reductions from the use of CORSIA eligible fuel(s) claimed					

c) Table of all aerodrome pairs

Please list all aerodrome pairs on which international flights were performed and enter the number of flights and the amount of CO_2 emissions.

(*) For the purposes of this template, the fuel total could include the sum of equivalent fuels.

Departure		Arrival		CO_2 emissions estimated with CERT?	Total No. of flights	Fuel type (*)	Total amount of fuel used (in tonnes)	Fuel conversion factors	CO_2 emissions (in tonnes)	Subject to offsetting requirements?
ICAO airport code	State	ICAO airport code	State							

6 DATA GAPS

Explanation: *"Data gaps" occur when an aeroplane operator is missing data which is relevant for the determination of its fuel use for one or more international flights in accordance with Annex 16, Volume IV, Part II, Chapter 2, 2.2.1.1.*

Did any data gaps occur during the reporting year?

Is the threshold of 5 per cent for data gaps exceeded?

In 2019 and 2020, 5 per cent refers to international flights, as defined in Annex 16, Volume IV, Part II, Chapter 1, 1.1.2, and Chapter 2, 2.1.
From 2021 onwards, 5 per cent refers to international flights subject to offsetting requirements, as defined in Annex 16, Volume IV, Part II, Chapter 1, 1.1.2, and Chapter 3, 3.1.

The aeroplane operator using a Fuel Use Monitoring Method shall fill data gaps using the ICAO CORSIA CERT, provided that the data gaps during a compliance period do not exceed the thresholds described
Estimated emissions should then appear in spreadsheet ***Reporting -*** *as separate State pairs (if reporting is done at State pair level) or in spreadsheet* ***Reporting - Aerodrome*** *as separate aerodrome pairs (if reporting is done at aerodrome pair level).*

Per cent of

Please enter per cent of data gaps (according to criteria defined in Part II, Chapter 2, 2.5.1 and rounded to the nearest 0.1 per cent)

List of data gaps if the 5 per cent threshold has been exceeded in the reporting year

Please complete the list underneath if the threshold has been exceeded.

	R *Describe the data gap, by referencing the aerodrome, flight for which the occurred and/or the end date of the the data gap*	*Please describe the why the data gap*	*Describe data measur available", not*	Repla *Describe the determining dat refer proceau Emissions Plan, "by ...*	*Provide which are th*	e

The following section provides guidance on material changes

APPENDIX 3:-MATERIAL CHANGE OR NOTICE OF CHANGE

AO identification

EMP PROVISION	MATERIAL OR NOTICE OF CHANGE
Identification of AO with legal responsibility.	Can be material – If legal entity or means to identify legal entity changes; resubmit and subject to reapproval.
Name and address.	Can be material – If changes to name and/or address are due to a change in the legal entity or means for the Authority to identify legal entity changes; resubmit and

EMP PROVISION	MATERIAL OR NOTICE OF CHANGE
	subject to re-approval.
Identifying information for attributing the AO to a State: either unique ICAO Designator (or Designators) used in the call sign for air traffic control purposes; copy of the air operator certificate; or place of juridical registration.	A change in the identifying information would be material; resubmit and subject to re-approval.
Details of ownership structure relative to any other AOs with international flights, including identification of whether the AO is a parent company, a subsidiary and/or has a parent and/or subsidiary.	Not material, unless a change in corporate structure changed the entity which is the AO. Changes that do not affect which entity is the AO would be handled as a simple notice to the authority in the annual Emissions Report.
If the AO in a parent-subsidiary relationship seeks to be considered a single AO for purposes of the CORSIA, confirm that those parent and/or subsidiaries are subject to CORSIA requirements by the Republic and that the subsidiary(ies) are wholly-owned by the parent.	Would be material if the corporate structure changed in a way that the entity no longer was eligible to be considered a single AO under CORSIA.

Contact information for person within the AO's company who is responsible for the EMP.	Not material- Changes in this would be handled as simple notice to the Authority in the annual Emissions Report
Brief description of AO's activities (e.g., scheduled/non-scheduled, passenger/cargo/executive, and geographic scope of operations).	Not material

Fleet and operations data

EMP PROVISION	MATERIAL OR NOTICE OF CHANGE
List of the aeroplane types with maximum certificated take-off mass (MTOM) greater than 5 700 kg and types of aviation fuel (e.g., Jet-A, Jet-A1, Jet-B, Aviation Gasoline) used in aeroplane operated in international flight at the time of submission of the EMP, recognizing that there may be changes over time	Not material – changes in this could be handled as simple notice to the authority in the annual Emissions Report.
Identify the AO's means for having its international flights attributed to it: ICAO Designator; or registration marks	A change in the means for having international flights attributed; resubmit the EMP and subject to reapproval.
Information on procedures for how changes in aeroplane fleet and fuel used will be tracked and integrated in emissions monitoring.	Can be material – if the AO changes the procedures that would be subject to re-review and re-approval by the Authority.
Information on the means the AO will use to track/document each aeroplane operated and the specific flights of the aeroplane to ensure completeness of monitoring.	Can be material- if the AO changes the means for tracking/documenting that would be subject to re-review and re-approval by the Authority; reviewer to review and confirm that sufficient means are in place.
Information on procedures for determining which aeroplane flights meet the definition of international	Can be material- If the AO changes procedures, that would be subject to re-review and re-approval by the

EMP PROVISION	MATERIAL OR NOTICE OF CHANGE
flights, as defined in CAR 91.10, and therefore are subject to the emissions monitoring requirements.	Authority.

	List all of States at the time of initial EMP submission where the AO operates international flights, listed as State pairs (e.g., State A to State B; State C to State D).	Not material – Changes in this would be handled as simple notice to the Authority in the AO's annual Emissions Report.
	Information on procedures for identifying international flights subject to offsetting requirements, as defined CAR 91.10	Can be material – If the AO changes procedures, that would be subject to re-review and re-approval by the Authority.
	If the AO conducts any domestic flights and/or humanitarian, medical or firefighting international flights that would not be subject to the emissions monitoring requirements, information on the procedures for how those flights will be separated from those subjects to the emissions monitoring requirements.	Can be material – If the AO changes procedures that would be subject to re-review and re-approval by the Authority.

Methods/Means of calculating emissions from international flights

a) Methods/Means for establishing the 2019-2020 period

	EMP PROVISION	MATERIAL OR NOTICE OF CHANGE
	Does the AO seek to use the ICAO CORSIA CERT (for which the threshold is less than 500 000 tonnes of CO_2 from international flights, as defined CAR 91.10)? If so, provide an estimate of CO_2 emissions for all international flights (other than humanitarian, medical or firefighting flights) in 2018. Provide supporting information on how the estimation of emissions was reached, including on how fuel consumption was estimated.	This is a one-time demonstration for purposes of the 2019-2020 period only, so a change during the monitoring period would not result in a requirement to resubmit the plan on these grounds for the purposes of the 2019-2020 period.
	If the AO will be using the ICAO CORSIA CERT, identify the input method into the ICAO CORSIA CERT (i.e., Great Circle Distance input method or Block Time input method).	Can be material- If the AO changes methods that would be subject to review and approval by the Authority; reviewer to review and confirm

For AOs using a Fuel Use Monitoring Method, provide information on the specific Fuel Use Monitoring Method as described in CAR 91.10, whether the AO plans to use different methods for different aeroplane fleet types.	Can be material- If the AO changes methods that would be subject to review and approval by the Authority; reviewer to review and confirm.
For AOs using a Fuel Use Monitoring Method, provide information on the procedures for determining and recording fuel density values (standard or actual) as used for operational and safety reasons and provide a reference to the relevant AO documentation.	Can be material- if the operator changes its procedures for determining and/or recording fuel density values that would be subject to re-review and re-approval by the Authority.
If the AO is in a parent-subsidiary relationship and seeks to be considered a single AO for purposes of complying with CAR 91.10, identify the procedures that	Can be material – if the AO changes systems and procedures for segregating the information.

TGM for CORSIA EMP Material and/or Notice of Change

EMP PROVISION	MATERIAL OR NOTICE OF CHANGE
will be used for maintaining separate 2019-2020 fuel and emissions monitoring of the various corporate entities for establishing individual 2019-2020 CO_2 emissions for the parent and subsidiary (or subsidiaries).	

b) Methods/Means for emissions monitoring and compliance after 2020

EMP PROVISION	MATERIAL OR NOTICE OF CHANGE
If the AO has international flights, but does not have any international flights subject to the offsetting requirements, does the AO plan to use the ICAO CORSIA CERT?	Can be material – if the AO begins to operate flights subject to the offsetting requirements
If the AO has international flights, including international flights subject to the offsetting requirements, are the AO's emissions from international flights subject to offsetting requirements less than 50 000 tonnes and does the AO plan to use the ICAO CORSIA CERT? If so, provide an estimate of CO_2 emissions for all international flights that would be subject to the offsetting requirement for the year before the emissions monitoring is to occur (for example, for monitoring in 2021, provide an estimate of such emissions for 2020). Provide supporting information on how the estimation of emissions was reached, including on how fuel consumption was estimated.	If the AO's CO_2 emissions for international flights exceed the threshold, such that the AO is no longer eligible to use the ICAO CORSIA CERT, this would be material.
If the AO will be using the ICAO CORSIA CERT, identify which input method into the CERT will be used (i.e., Great Circle Distance input method or Block Time input method).	Can be material – If the AO changes methods that would be subject to review and approval by the State; reviewer to review and confirm.
If the AO will be using a Fuel Use Monitoring Method for flights subject to the emissions monitoring requirements and the offsetting requirements under NAMCAR Part 95, provide information on the specific Fuel Use Monitoring Method, whether the AO plans to	Can be material – If the AO changes methods or seeks to revise its approach to fuel density, that would be subject to review and approval by the Authority; reviewer to review and confirm that AO has noted proper and sufficient fuel use methodology.

	use different methods for different aeroplane types.	
	Provide information on the procedures for determining and recording fuel density values (standard or actual) as used for operational and safety reasons and provide a reference to the relevant AO documentation.	Can be material – if the AO changes its procedures for determining and/or recording fuel density values that would be subject to re-review and re-approval by the Authority.
	If the AO is applying Fuel Use Monitoring Methods as described in NAMCAR 95 for flights subject to both emissions monitoring and offsetting requirements, does the AO plan to use the ICAO CORSIA CERT for international flights that are only subject to emissions monitoring but not subject to the offsetting requirement? If so, which input method into the ICAO CORSIA CERT	Can be material – If the AO's choice of options under the simplified fuel use methodology changes, that would be subject to review and approval by the Authority; reviewer to review and confirm that the AO has noted proper and sufficient simplified fuel use methodology.

	(i.e., Great Circle Distance input method or Block Time input method)?	
	Information about the systems and procedures to monitor fuel consumption in both owned and leased aeroplane(s).	Can be material – if the AO changes systems for differentiating fuel use to owned or leased aeroplane(s), that would be subject to re-review and re-approval by the Authority.

Data management, data flow and control

	EMP PROVISION	MATERIAL OR NOTICE OF CHANGE
	How data management will be done by the AO and by who.	Can be material – If the AO changes the underlying approach to data management, that would be subject to re-review and re-approval by the Authority.
	Handling data gaps and erroneous data values: if data is missing/incorrect such that the AO cannot determine emissions for a flight in accordance with the specified procedures, what secondary data reference sources would be used as an alternative? In cases where a	Can be material – If the AO changes the means for handling data gaps significant risks, that would be subject to re-review and re-approval by the Authority.

	secondary data reference source is not available, what method would be used to fill data gaps?	
	Documentation and record keeping plan.	Not material.
	Brief assessment of the risks associated with the data management processes and means for addressing significant risks.	Can be material – If the AO changes the means of addressing significant risks, that would be subject to rereview and re-approval by the Authority.
	Procedures for making revisions to the EMP and resubmitting relevant portions to the Authority when there are material changes to the EMP and for providing notice in the Emissions Report of nonmaterial changes that require notice to the Authority.	Not material.
	Attach a data flow diagram summarizing the systems are used to record and store data associated with the monitoring and reporting of CO_2 emissions.	Not material.