

Quality assurance logic

E-PRTR and LCP integrated reporting

Document for users

Version 6.0 – 05/05/2021



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Should you have any need of clarification, please contact Industrial.Emissions@eea.europa.eu.

Version control

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1 Objectives of the quality assurance

Under the European Commission initiative to streamline the reporting of emissions for industrial entities, thematic information for large combustion plants (LCPs) required under the Industrial Emissions Directive (IED) and facilities under the European Pollutant Release and Transfer Register (E-PRTR) Regulation (European Commission (EC)) No 166/2006 is now to be reported in an integrated dataflow. This will result in a coherent and consistent database of emissions data from LCP installation parts and E-PRTR facilities.

This process is designed to run in parallel with the EU Registry on Industrial Sites (hereafter referred to as the 'EU Registry') which will provide geographical and administrative references for the thematic data. Comprehensive validation and checks of the integrated LCP and E-PRTR facility data submissions should improve data completeness and continuity for industrial emissions, thus enhancing policy analysis and development.

The quality assurance logic for the E-PRTR and LCP integrated reporting as described in this document is designed to meet two key objectives:

- Ensure that thematic emissions time series data are consistently and accurately reported, building a coherent database that improves transparency of industrial emissions across the Member States (MS).
- Enforce more complex aspects and interdependencies of the data model for the integrated reporting, including the links between the administrative and thematic data, reducing the potential for nonsensical data.

A key feature of the E-PRTR and LCP integrated reporting data model is the interrelation of LCP installation parts, their parent E-PRTR facilities and the administrative information that link them. As such, identifying the inconsistencies between emissions from installation parts and facilities is paramount to the integrity of the database. Equally, ensuring that emissions data is accurately reported with regards to the administrative information supplied in the EU Registry is also an important factor in adopting a holistic approach to data collection.

2 Background

This document is one of three key documents that describe the integrated reporting dataflow for E-PRTR and LCP thematic information. The Data Model Documentation¹ outlines the structure and basic requirements of the integrated thematic reporting and was the subject of a MS consultation that closed on the 28th June 2017. A third document, the Manual for Reporters provides technical guidance such as further information on the two reporting 'streams' contained within the thematic reporting dataflow and handling more complex reporting situations. These three documents follow an existing set of documents that describe the reporting of geographical and administrative data to the EU Registry which act as reference information for the data reported within the thematic integrated dataflow.

The quality assurance and quality control (QA/QC) checks described here draw upon pre-existing checks included in the *LCP Data Checks 2016* ETC/ACM Technical Paper (Moosmann, 2016; not publicly available), the *E-PRTR Validation Tool User Manual*² (Atkins and TripleDev, 2012) and the *E-PRTR data review methodology*³ (RIVM, UBA and EEA, 2017). All the checks included are designed to ensure that data submissions from MS are fully compliant with the E-PRTR under Regulation (EC) No. 166/2006 and LCP reporting under Chapter III and Article 72 of the IED, 2010/75/EU. Where more complex checks are required to ensure compliance with reporting requirements, the *Guidance Document for the implementation of the European PRTR*⁴ (European Commission, 2006) has been consulted.

The checks detailed within this document are based on the premise that an XML file submission is compliant with the schema specified in the E-PRTR and LCP integrated reporting data model documentation⁵. It is expected that MS will receive automatic warnings for invalid XML file submissions from the European Environment Agency's (EEA) Central Data Repository (CDR) site that do not comply with the basic requirements of the E-PRTR and LCP integrated reporting XML schema (e.g. data formatting, multiplicity or referential integrity); such issues are not discussed here. Instead, the focus of the checks detailed in this document are on complex content-related issues and dependencies, on ensuring coherency both within a submission, between the EU Registry and the integrated thematic reporting, and with data previously submitted to the E-PRTR+LCP thematic database. Some checks that rely on data from the previous reporting year may not be carried out in the first year that the E-PRTR and LCP integrated reporting goes live. These will be flagged to the reporters on the CDR during the submission.

¹ http://cdrtest.eionet.europa.eu/help/eptr_lcp/Final%20model/EPTR-LCP_datamodel_v2.pdf

² <https://www.eionet.europa.eu/schemas/eptr/EPTRUserManual.pdf>

³ http://cdr.eionet.europa.eu/help/eptr/E-PRTR_data_review_methodology_report_2017_WEB.pdf

⁴ <http://ec.europa.eu/environment/industry/stationary/eper/implementation.htm>

⁵ See note 1.

3 Summary of QA/QC checks

Each check can be categorised according to whether it applies to just a single XML file submission and the relationships between attributes contained within that submission, or whether it compares between the contents of an XML file submission and data submitted to the EU Registry.

It should be noted that these checks should be read in the context of the full data model documentation for the E-PRTR and LCP integrated reporting⁶, and more specifically are tailored towards the structure of the dataflow, displayed in Figure 3 of that document.

All the checks described here will be run as a series of XQueries in the CDR at the time of submission. Depending on the severity and complexity of the issue, the consequences of a failed check will vary between:

- Blockers: a complete blocking of the release of the data envelope
- Warnings: feedback messages of a serious nature but they do not prevent the release of the envelope
- Information messages: feedback messages that do not necessarily signal an error but rather a significant aspect of the submitted data that can help to improve its quality

The feedback from these checks will be presented by groups of checks. In addition to this, there will also be feedback presented on an entity by entity basis, i.e. the checks that have failed will be listed by the relevant E-PRTR facility or installation part. This is to provide an additional layer of information of the QA/QC measures to help reporting Member States address the highlighted issues more efficiently.

It is expected that after submission EEA staff will review certain warnings that may warrant further investigation, such as over-usage of confidentiality designations or where emission outliers have been identified. EEA and European Commission (EC) staff will also be able to use submissions to the E-PRTR and LCP integrated reporting to check whether information reported on derogations is consistent with official declarations made by Member States to the EC.

A number of checks rely on previous years' submissions in the form of look-up tables. In the first year of reporting these look-up tables will not have any data and therefore the following checks will be turned off for the first reporting year:

- 8.2 – Article 31 derogation justification.
- 12.1 – Identification of ProductionFacility release/transfer outliers against previous year data at the national level.
- 12.3 – Identification of ProductionFacility release/transfer outliers against previous year data at the ProductionFacility level.
- 12.4 – Identification of ProductionInstallationPart emission outliers against previous year data at the ProductionInstallationPart level.
- 12.5 – Time series consistency for ProductionFacility emissions.
- 12.6 – Time series consistency for ProductionInstallationPart emissions.
- 14.1 – Identification of top 10 ProductionFacility releases/transfers across Europe.

⁶See note 1.

4 Detailed parameters for each QA/QC check

1. Code list checks

C1.0 – Code list checks

Rationale:

The feature types listed in Table 4.1 contain attributes that need to be populated with code list values relating to specified values held in lists. Attributes that require code lists must be populated with the full URL of the code list value. This standardises data entry for the specified fields and ensures that the harvesting procedure can identify the required data. These fields require checking to ensure the relevant code lists are adhered to as codes lists that are not recognised will lead to nonsensical data.

Criteria:

For each feature type listed below, the listed attributes will be compared against the relevant code lists in the CDR data dictionary. Where the attribute occurs in multiple data types within the feature type, all instances of the attribute will be checked within the specified feature type. The URLs specified in these attributes should be consistent with the values listed in the code lists. A number of the attributes are also mandatory and will be flagged if left unpopulated, marked with a “*” in the below table. These attributes must be reported.

Table 4.1 Code list checks

| Check number | Feature Type(s) | Attribute | Code list |
|--------------|--|--------------------------|------------------------------|
| C1.1 | CombustionPlantCategoryType | combustionPlantCategory* | combustionPlantCategoryValue |
| C1.2 | ReportData, AddressDetails | CountryId*, CountryCode | CountryCodeValue |
| C1.3 | OffsitePollutantTransfer, PollutantRelease | EPTRPollutant* | EPTRPollutantCodeValue |
| C1.4 | EnergyInput | fuelInput* | fuelInputValue |
| C1.5 | EmissionsToAir | LCPPollutant* | LCPPollutantCodeValue |
| C1.6 | PollutantRelease | mediumCode* | MediumCodeValue |
| C1.7 | MethodType | methodClassification | MethodClassificationValue |
| C1.8 | MethodType | methodCode* | MethodCodeValue |
| C1.9 | DesulphurisationInformationType | Month | MonthValue |

| Check number | Feature Type(s) | Attribute | Code list |
|--------------|-------------------------------------|----------------------|--------------------------|
| C1.10 | FuelInputType | OtherGaseousFuel | OtherGaseousFuelValue |
| C1.11 | FuelInputType | OtherSolidFuel | OtherSolidFuelValue |
| C1.12 | All feature types except ReportData | ReasonValue | ReasonValue |
| C1.13 | ProductionVolumeType | UnitCode | UnitCodeValue |
| C1.14 | MethodType | wasteClassification* | wasteClassificationValue |
| C1.15 | OffsiteWasteTransfer | wasteTreatment* | wasteTreatmentValue |

Consequences of failing:

A blocking error will be displayed specifying which code list entries have not been recognised. This will prevent the release of the data envelope.

Dependencies to look-up tables or external data:

This check is dependent on the code list found in the data dictionary for 'EPTR and LCP', see <https://dd.eionet.europa.eu/vocabularies>.

Needs of maintenance:

The above code lists will need to be maintained.

2. InspireId checks

C2.1 – inspireId consistency

Rationale:

The success of the Integrated E-PRTR and LCP Reporting is dependent on the correct use of inspireIds. LCP and facility reporting must be linked to the existing EU Registry in order to attribute thematic data to administrative and geospatial information. The two sets of data are linked with the unique inspireId identifier. A check is required to confirm whether the inspireId reported for a ProductionInstallationPart or ProductionFacility has already been reported within the EU Registry.

Criteria:

All inspirelds specified for either a ProductionInstallationPart or a ProductionFacility within a single XML will be cross-referenced with the EU Registry. Any inspireld provided in the Integrated E-PRTR and LCP Reporting must already exist within the EU Registry.

Consequences of failing:

A blocking error will be displayed providing all the inspirelds that could not be found within the EU Registry. This will prevent the release of the data envelope.

Dependencies to look-up tables or external data:

This check is dependent on the existing inspirelds found within the EU Registry.

Needs of maintenance:

The EU Registry must be maintained and updated as required.

C2.2 – Comprehensive LCP reporting

Rationale:

Emissions and energy input data is required to be submitted for all LCPs covered by Chapter III of the IED as mandated by the Article 72 (3) of the IED. As such, it is necessary that any LCP registered in the EU Registry reports its thematic data consistently. Missing thematic data submissions could lead to data gaps in the time series. A check is required to ensure that, unless reported as decommissioned, all LCPs registered in the EU Registry have thematic data reported for them, as identified by the presence of the inspireld.

Criteria:

All inspirelds reported for LCPs in the EU Registry will be cross-referenced with the data submitted within the E-PRTR and LCP integrated reporting XML file. Unless the associated StatusType attribute is populated with 'decommissioned', inspirelds not found within the XML file will be flagged for the attention of the MS.

Consequences of failing:

A blocking error will be displayed providing all the inspirelds that could not be found within the E-PRTR and LCP integrated reporting XML file. This will prevent the release of the envelope.

Dependencies to look-up tables or external data:

This check is dependent on the list of inspirelds reported for ProductionInstallationParts within the EU Registry and their associated StatusType attribute.

Needs of maintenance:

The EU Registry must be maintained and updated as required.

C2.3 – ProductionFacility inspireId uniqueness

Rationale:

The success of the Integrated E-PRTR and LCP Reporting is dependent on the correct use of inspireIds. This needs to be unique in order to differentiate between different ProductionFacilities within the XML file submission. A check is required in order to confirm uniqueness on the ProductionFacility side of the thematic data model.

Criteria:

All inspireIds specified for a ProductionFacility within a single XML file submission will be compared to one another. No inspireIds should be the same.

Consequences of failing:

Provide a blocking error, specifying all inspireIds that fail the above criteria. This will prevent the release of the envelope.

Dependencies to look-up tables or external data:

This check has no associated dependencies and no requirement for external data.

Needs of maintenance:

No current needs for maintenance have been identified.

C2.4 – ProductionInstallationPart inspireId uniqueness

Rationale:

The success of the Integrated E-PRTR and LCP Reporting is dependent on the correct use of inspireIds. This needs to be unique in order to differentiate between different ProductionInstallationParts within a XML file submission. A check is required in order to confirm uniqueness on the ProductionInstallationPart side of the thematic data model.

Criteria:

All inspireIds specified for a ProductionInstallationParts within a single XML file submission will be compared to one another. No inspireIds should be the same.

Consequences of failing:

Provide a blocking error, specifying all inspireIds that fail the above criteria. This will prevent the release of the data envelope.

Dependencies to look-up tables or external data:

This check has no associated dependencies and no requirement for external data.

Needs of maintenance:

No current needs for maintenance have been identified.

3. Comprehensive reporting checks

C3.1 – Pollutant reporting completeness

Rationale:

All LCPs are required to report emissions of SO₂, NO_x and dust (as Total Suspended Particles ((TSP) under Article 72 (3d) of the IED. A check is required to ensure that all three pollutants have been reported for every LCP.

Criteria:

Within the EmissionsToAir data type, the pollutants reported will be checked against the list of mandatory reported pollutants, SO₂, NO_x and TSP. Omission of any of these pollutants will be flagged for attention.

Consequences of failing:

A blocking error will be displayed specifying the pollutant that has not been reported under the EmissionsToAir data type. This will prevent the release of the data envelope.

Dependencies to look-up tables or external data:

This check is dependent on data contained within the XML file submission, so no external data is required.

Needs of maintenance:

No current needs for maintenance have been identified.

C3.2 - EnergyInput reporting completeness

Rationale:

All LCPs are required under Article 72 (3f) of the IED to report the total amount of energy input, broken down in terms of eight key fuel categories: coal, lignite, biomass, peat, other solid fuels, liquid fuels, natural gas and other gases. It must be noted that multiple fuelInputs can be reported for 'other solid fuels' and 'other gases' so this check will ensure that **at least** all eight fuel types have been reported for every LCP.

Criteria:

Within the EnergyInput data type, the following fuelInputs must be reported (inclusive of zero values): coal, lignite, biomass, peat, other solid fuels, liquid fuels, natural gas and other gases. 'other solid fuels' and 'other gases' can be populated with multiple values from the OtherGaseousFuelValue and OtherSolidFuelValue code lists and so must be populated with **at least** one value each. Omissions of any of these fuels will be flagged for attention.

Consequences of failing:

A blocking error will be displayed specifying the fuel that has not been reported under the EnergyInput data type. This will prevent the release of the data envelope.

Dependencies to look-up tables or external data:

This check is dependent on data contained within the XML file submission, so no external data is required.

Needs of maintenance:

No current needs for maintenance have been identified.

C3.3 – 'Other' fuel reporting completeness**Rationale:**

Under Article 72 (3f), LCPs are required to report the total amount of energy input, broken down by category, two of which allow reporters to provide more detail than the code list allows. 'other' can be reported as a value for both the otherSolidFuel and otherGaseousFuel attributes. If 'other' is reported for the otherSolidFuel and/or otherGaseousFuel attributes, then it is good practise to populate the furtherDetails attribute with a character string to provide more detail specifying the fuel. A check is required to highlight where the furtherDetails attribute has not been populated in these circumstances.

Criteria:

Where otherSolidFuel or otherGaseousFuel attributes are populated with 'other', the furtherDetails attribute should be completed with further details as a character string.

Consequences of failing:

A warning error will be displayed specifying the 'other' fuel that has not been expanded upon under the furtherDetails attribute. This will not prevent the release of the envelope.

Dependencies to look-up tables or external data:

This check is dependent on data contained within the XML file submission, so no external data is required.

Needs of maintenance:

No current needs for maintenance have been identified.

C3.4 – Comprehensive methodClassification reporting

Rationale:

Article 5 of the E-PRTR Regulation stipulates that the method classification must be specified if the method is reported as Measured (M) or Calculated (C). A check is required to ensure that if the method code for any pollutant release, transfer or waste transfer is reported as 'M' or 'C', then a method classification is also supplied.

Criteria:

Where the methodCode attribute has been populated with a code list value representing Measured or Calculated, for any OffsiteWasteTransfer, OffsitePollutantTransfer or PollutantRelease, the methodClassification attribute must be populated with a value from the MethodClassificationValue code list.

Consequences of failing:

A warning message will be produced, specifying all transfers and releases, and associated ProductionFacilities, which have not met reporting requirements for the method classification. This will not prevent the release of the data envelope.

Dependencies to look-up tables or external data:

This check has no associated dependencies and no requirement for external data.

Needs of maintenance:

No current needs for maintenance have been identified.

C3.5 – furtherDetails for reporting methodClassification

Rationale:

Article 5 of the E-PRTR Regulation stipulates that the measurement method classification must be specified if the method is reported as Measured (M) or Calculated (C). Further to this, it is good practise to provide more details on specific standard and reference methods for certain method classifications.

Criteria:

Where the methodClassification attribute has been populated with a code list value representing CEN/ISO, UNECE/EMEP, OTH (other), and IPCC standards and reference methods, for any OffsiteWasteTransfer, OffsitePollutantTransfer or PollutantRelease, the furtherDetails attribute should be populated with a character string.

Consequences of failing:

A warning message will be produced, specifying all transfers and releases, and associated ProductionFacilities, which have not provided further information on method classification. This will not prevent the release of the data envelope.

Dependencies to look-up tables or external data:

This check has no associated dependencies and no requirement for external data.

Needs of maintenance:

No current needs for maintenance have been identified.

C3.6 – transboundaryTransfer completeness

Rationale:

If an E-PRTR facility reports off-site hazardous waste transfer that is transboundary in regard to the country reporting, then additional information on the receiving/disposal site is required under Article 5 of the E-PRTR Regulation. Hence, if the offsite waste is classified as hazardous and is being transferred across country borders then the name and address attributes for the receiver/disposer and receiving/disposal sites must be populated with a character string. Whether this address refers to the receiver or disposer, receiving site or disposal site, depends on how the wasteTreatment attribute is populated. If, for example, wasteTreatment is populated with 'D', indicating that the waste is destined for disposal, then the receiver/receiving site address attributes refer to the disposer/disposal site address. Due to legal requirements, there is no mechanism for reporters to indicate whether a hazardous waste transfer is transboundary or not as such an attribute would require reporters to indicate whether non-hazardous waste transfers are transboundary or not, for which there is no legal basis. As such, this information must be provided in the address details attributes.

Criteria:

Where the wasteClassification is set to 'HW' within the OffsiteWasteTransfer feature type and the waste transfer is transboundary in regard to the country reporting, the following attributes should contain a character string:

- nameOfReceiver
- addressOfReceiver
- addressOfReceivingSite

Where at least one of these elements is completed the remaining elements must also be completed. This excludes buildingNumber under the addressOfReceiver and addressOfReceiving sites attributes.

Consequences of failing:

A blocking error will be displayed specifying the elements that should be populated. This will prevent the release of the envelope.

Dependencies to look-up tables or external data:

This check is dependent on data contained within the XML file submission, so no external data is required.

Needs of maintenance:

No current needs for maintenance have been identified.

4. Reporting form plausibility checks

C4.1 – ReportingYear plausibility

Rationale:

MS submit reported data under a specific Reportnet envelope, and the reported data pertains to a specific reporting year. The data envelope's year (as found in its meta-data in CDR) should be the same as the reporting year. A check is required to enforce this.

Criteria:

The XML file submission should not have 'reportingYear' value that is different than the Reportnet's envelope year value.

Consequences of failing:

A blocking error, specifying the XML file submissions reporting year will be shown. This will prevent the release of the envelope.

Dependencies to look-up tables or external data:

This check uses data present in the envelopes meta-data.

Needs of maintenance:

No current needs for maintenance have been identified.

C4.2 – accidentalPollutantQuantityKg plausibility

Rationale:

For the PollutantRelease feature type, the totalPollutantQuantityKg is further subcategorised by accidentalPollutantQuantityKg. This attribute represents the proportion of the total pollutant release that has been released accidentally. This attribute requires checking such that the

accidentalPollutantQuantityKg attribute value is less than, or equal to, to the totalPollutantQuantityKg attribute value as the accidental quantity is contained in the total quantity.

Criteria:

The totalPollutantQuantityKg and accidentalPollutantQuantityKg values must be reported in line with reporting requirements for the PollutantRelease feature type. The decimal value reported for the accidentalPollutantQuantityKg attribute will be checked against the corresponding totalPollutantQuantityKg attribute value. For each specified pollutant released into a specified medium, the accidentalPollutantQuantityKg attribute value must be less than, or equal to, the totalPollutantQuantityKg attribute value.

Consequences of failing:

A warning error will be displayed specifying which accidentalPollutantQuantityKg attribute value(s) is not valid. This will not prevent the release of the data envelope.

Dependencies to look-up tables or external data:

This check uses data present within the XML file submission.

Needs of maintenance:

No current needs for maintenance have been identified.

C4.3 – CO₂ reporting plausibility

Rationale:

ProductionFacilities are required to report the total mass of CO₂ where emissions exceed Annex II thresholds under the E-PRTR. This value incorporates releases of CO₂ from biomass. Reporters are also given the option to voluntarily report releases of CO₂ excluding biomass. For these values to be coherent, total CO₂ must be greater than, or equal to, CO₂ excluding biomass.

Criteria:

PollutantReleases of CO₂ and CO₂ excluding biomass will be compared at the ProductionFacility level. The reported value of CO₂ released to air must be larger than, or equal to, reported CO₂ excluding biomass emissions.

Consequences of failing:

A warning error will be displayed specifying the ProductionFacility for which reported CO₂ excluding biomass exceeds reported CO₂ emissions.

Dependencies to look-up tables or external data:

This check is dependent on data contained within the XML file submission, so no external data is required.

Needs of maintenance:

No current needs for maintenance have been identified

5. Duplicate identification checks

C.5.1 – Identification of fuelInput duplicates

Rationale:

Energy input from each fuel type should only be reported once per installation part as the introduction of duplicates can undermine the integrity of the master database. A check is required to confirm that each fuel has only been reported once per installation part.

Criteria:

Within a single XML file submission, a specified fuel within the EnergyInput feature type must only exist once per ProductionInstallationPart. This check will compare values listed for the fuelInput attribute within the EnergyInput feature type, embedded within the ProductionInstallationPart feature type, and identify exact matches. This does not apply in cases where 'other solid fuel' or 'other gases' are entered as attributes, as these are identified in subsequent checks.

Consequences of failing:

A blocking error will be displayed specifying the fuel that has been duplicated within the EnergyInput feature type. This will prevent the release of the data envelope.

Dependencies to look-up tables or external data:

This check is dependent on data contained within the XML file submission, so no external data is required.

Needs of maintenance:

No current needs for maintenance have been identified.

C.5.2 – Identification of otherSolidFuel duplicates

Rationale:

Energy input from each fuel type should only be reported once per installation part as the introduction of duplicates can undermine the integrity of the master database. Where 'other solid fuel' is reported under fuelInput, a further check is required to confirm that each other solid fuel has only been reported once per installation part.

Criteria:

This check will compare values listed for the otherSolidFuel attribute within the EnergyInput feature type, embedded within the ProductionInstallationPart feature type, and identify exact matches.

Cases where 'other' is chosen to populate the otherSolidFuel attribute will not be flagged. Instead, 'fuzzy matching' will be performed on the furtherDetails attribute and an algorithm to identify similarities will be utilised, with a suitable threshold representing a non-acceptable degree of similarity determined.

Consequences of failing:

A warning error will be displayed specifying the fuel that has been duplicated within the EnergyInput feature type, or specifying the furtherDetails attribute entries that exceed the similarity threshold. This will not prevent the release of the data envelope.

Dependencies to look-up tables or external data:

This check is dependent on data contained within the XML filesubmission, so no external data is required.

Needs of maintenance:

No current needs for maintenance have been identified.

C.5.3 – Identification of otherGaseousFuel duplicates

Rationale:

Energy input from each fuel type should only be reported once per installation part as the introduction of duplicates can undermine the integrity of the master database. Where 'other gases' is reported under fuelInput, a further check is required to confirm that each other gaseous fuel has only been reported once per installation part.

Criteria:

This check will compare values listed for the otherGaseousFuel attribute within the EnergyInput feature type, embedded within the ProductionInstallationPart feature type, and identify exact matches.

Cases where 'other' is chosen to populate the otherGaseousFuel attribute will not be flagged. Instead, 'fuzzy matching' will be performed on the furtherDetails attribute and an algorithm to identify similarities will be utilised, with a suitable threshold representing a non-acceptable degree of similarity determined.

Consequences of failing:

A warning error will be displayed specifying the fuel that has been duplicated within the EnergyInput feature type, or specifying the furtherDetails attribute entries that exceed the similarity threshold. This will not prevent the release of the data envelope.

Dependencies to look-up tables or external data:

This check is dependent on data contained within the XML file submission, so no external data is required.

Needs of maintenance:

No current needs for maintenance have been identified.

C5.4 - Identification of EmissionsToAir duplicates**Rationale:**

EmissionsToAir for a specific pollutant should only be reported once per installation part as the introduction of duplicates can undermine the integrity of the master database. A check is required to confirm that each pollutant has only been reported once per installation part.

Criteria:

Within a single XML file submission, a specified pollutant within the EmissionsToAir feature type must only exist once per ProductionInstallationPart. This check will compare values listed for the pollutant attribute within the EmissionsToAir feature type and identify exact matches.

Consequences of failing:

A blocking error will be displayed specifying the pollutant that has been duplicated within the EmissionsToAir feature type. This will prevent the release of the data envelope.

Dependencies to look-up tables or external data:

This check is dependent on data contained within the XML file submission, so no external data is required.

Needs of maintenance:

No current needs for maintenance have been identified.

C5.5 – Identification of PollutantRelease duplicates**Rationale:**

PollutantRelease for a specific pollutant into a specified medium should only be reported once per E-PRTR facility as the introduction of duplicates can undermine the integrity of the master database. A check is required to confirm that for each ProductionFacility, each pollutant has only been reported once per medium into which it is released.

Criteria:

Within a single XML file submission, a specified pollutant released into a specified medium must only exist once per ProductionFacility. This check will ensure that, within the PollutantRelease feature type, the EPRTRPollutantCodeValue and MediumCodeValue pair is unique among all other EPRTRPollutantCodeValue and MediumCodeValue pairs associated within the same ProductionFacility.

Consequences of failing:

A blocking error will be displayed specifying the pollutant and medium pair that has been duplicated within the PollutantRelease feature type. This will prevent the release of the data envelope.

Dependencies to look-up tables or external data:

This check is dependent on data contained within the XML file submission, so no external data is required.

Needs of maintenance:

No current needs for maintenance have been identified.

C5.6 – Identification of OffsitePollutantTransfer duplicates

Rationale:

OffsitePollutantTransfer for a specific pollutant should only be reported once per E-PRTR facility as the introduction of duplicates can undermine the integrity of the master database. A check is required to confirm that each pollutant has only been reported once per ProductionFacility.

Criteria:

Within a single XML file submission, a specified pollutant within the OffsitePollutantTransfer feature type must only exist once per ProductionFacility. This check will compare values listed for the pollutant attribute within the OffsitePollutantTransfer feature type and identify exact matches.

Consequences of failing:

A blocking error will be displayed specifying the pollutant that has been duplicated within the OffsitePollutantTransfer feature type. This will not prevent the release of the data envelope.

Dependencies to look-up tables or external data:

This check is dependent on data contained within the XML file submission, so no external data is required.

Needs of maintenance:

No current needs for maintenance have been identified.

C5.7 – Identification of month duplicates

Rationale:

Monthly averages of the sulphur content of indigenous solid fuels used and desulphurisation rates are required for LCPs subject to Article 31 of the IED. Each month must only be reported once per LCP as the

introduction of duplicates can undermine the integrity of the master database. A check is required to confirm that each month has only been reported once per ProductionInstallationPart.

Criteria:

Within a single XML file submission, the month reported pertaining to the desulphurisation rate achieved must only exist once per ProductionInstallationPart. This check will compare values listed for the month attribute within the DesulphurisationInformationType data type and identify exact matches.

Consequences of failing:

A warning error will be displayed specifying the month that has been duplicated within the DesulphurisationInformationType data type. This will not prevent the release of the data envelope.

Dependencies to look-up tables or external data:

This check is dependent on data contained within the XML file submission, so no external data is required.

Needs of maintenance:

No current needs for maintenance have been identified.

6. LCP and E-PRTR facility interrelation checks

C6.1 – Individual EmissionsToAir feasibility

Rationale:

The relationships between reported emissions to air from ProductionInstallationParts and ProductionFacilities can be used to identify potential reporting errors. SO₂ and NO_x emissions reported for an individual LCP installation part should not be higher than the emissions of the equivalent pollutant release reported to air for the parent E-PRTR facility, unless they are below the threshold for E-PRTR reporting.

A check is required to ensure these values are coherent. Similarly, dust emissions reported for an individual LCP installation part should not be more than twice as high as PM₁₀ reported to air for the parent E-PRTR facility. It must be noted that the pollutant reported under E-PRTR Facility reporting is PM₁₀, a subset of total dust emissions. One aspect that must be considered is that there may be multiple sources of PM₁₀ within a single E-PRTR facility other than from the LCP installation part stack. To allow for this, a conservative estimate that dust emissions are unlikely to be more than twice as much as PM₁₀ emissions is employed. This will be kept under review and may be amended in future years.

Criteria:

LCP installation parts and E-PRTR facilities that are associated in the EU Registry can be compared. Individual pollutant quantities for SO₂ or NO_x reported by an LCP InstallationPart (EmissionsToAir feature

type), should be lower than the respective reported values for SO_x and NO₂ from the associated parent ProductionFacility. Reported dust emission quantities for an LCP installation part should be lower than 2 times the reported PM₁₀ emissions for the parent E-PRTR facility⁷.

Consequence of failing:

A warning error will be displayed specifying the ProductionInstallationPart and pollutant, for which the reported EmissionsToAir are inconsistent with the PollutantRelease reported to air for the parent ProductionFacility.

Dependencies to look-up tables or external data:

This check depends on data contained within the EU Registry to identify ProductionInstallationPart and parent ProductionFacility relationship.

Needs of maintenance:

The EU Registry will need to be maintained and updated annually.

C6.2 – Cumulative EmissionsToAir feasibility

Rationale:

The cumulative emitted quantity for a specified pollutant for all LCP installation parts linked to a single parent E-PRTR facility should not exceed the total pollutant release to air for the same pollutant reported from an E-PRTR facility. This check applies to NO_x, SO₂ (compared to SO_x from reporting facility) and dust (compared to PM₁₀).

Criteria:

The sum value of EmissionsToAir for NO_x, SO₂ and dust will be calculated for all ProductionInstallationParts and compared to the NO_x, SO_x and PM₁₀ values for the parent E-PRTR facility. NO_x and SO₂ values shall not be larger than the total PollutantRelease value for the comparative pollutant released to air reported for the parent ProductionFacility. The cumulative quantity of dust reported should not exceed more than twice the reported PM₁₀.

As in C6.1, the threshold value for the dust/PM₁₀ relationship is subject to change as the contributing data and science is updated.

Consequences of failing:

⁷ This threshold value has been defined by expert judgement in the LCP Data Checks 2016 ETC/ACM Technical Paper.

A warning error will be displayed highlighting that the cumulative EmissionsToAir for all ProductionInstallationParts under a parent ProductionFacility exceed the PollutantRelease value for a specified pollutant. This will not prevent the release of the envelope.

Dependencies to look-up tables or external data:

This check depends on data contained within the EU Registry to identify parent ProductionFacility and child ProductionInstallationPart relationship.

Needs of maintenance:

The EU Registry will need to be maintained and updated annually.

7. Thematic validity checks

C7.1 – EnergyInput, totalRatedThermalInput and numberOfOperatingHours plausibility

Rationale:

There exists a maximum quantity of fuel that a given LCP InstallationPart can burn with a given thermal input capacity if operational all year (equivalent to 8784 hours). Hence, the relationship between energy input and total rated thermal input capacity can be used to calculate a theoretical number of operating hours from the reported values.

This calculated number of operating hours can then be used to verify several aspects of the LCP InstallationPart report. These include whether the calculated operating hours are significantly different from the reported operating hours, whether the calculated operating hours exceed the number of hours in a leap year (8784), in which case the energy input or total rated thermal input have been reported incorrectly and whether the calculated reporting hours exceed the number of operating hours reported for the parent E-PRTR facility. Additionally, the reported number of operating hours should not exceed the number of hours in a year (to avoid issues in leap years the limit has been set at 8784 hours).

Criteria:

A theoretical number of operating hours can be calculated from the ratio between EnergyInput and totalRatedThermalInput values as such:

- Convert an LCP InstallationPart's total EnergyInput from TJ per year to MW by multiplying the aggregated energyInputTJ value by the conversion factor, 0.0317:

$$\text{Aggregated energy input (TJ/yr)} * 0.0317 = \text{Aggregated energy input (MW)}$$

- Calculate the representative proportion of the fuel capacity that's been burned in the reporting year with the energy input (MW)/rated thermal input (MW) ratio:

Aggregated energy input (MW)/total rated thermal input (MW) = Proportion of fuel capacity burned

- Multiply the proportion of fuel capacity burned by the number of hours in the year to calculate a theoretical number of operating hours:

Proportion of fuel capacity burned * 8784 = Calculated operating hours

The calculated value can then be used to check for four separate reporting errors:

- The calculated operating hours should not be less than the reported numberOfOperatingHours by more than 50%, nor should it be more than the reported numberOfOperatingHours by more than 10%. These threshold values are subject to change following further testing.
- The calculated operating hours should not exceed 8784, the total number of operating hours in the year.
- The calculated operating hours should not exceed the reported numberOfOperatingHours for the associated parent ProductionFacility, if available.

LCP InstallationParts will be flagged if the calculated operating hours breach any of the conditions above. LCP installationParts will also be flagged if the reported operating hours are a value over 8784.

Consequences of failing:

A warning message will be displayed specifying the ProductionInstallationParts for which the calculated operating hours:

- Are above the reported numberOfOperatingHours by more than 10%.
- Exceed 8784 hours.
- Exceed the reported numberOfOperatingHours for the associated parent ProductionFacility.

A blocking error will be produced for ProductionInstallationParts for which the reported operating hours exceed 8784.

Dependencies to look-up tables or external data:

This check will require access to the EU Registry totalRatedThermalInput attribute for the specified ProductionInstallationPart and to derive the parent-child relationship between associated ProductionInstallationParts and ProductionFacilities.

Needs of maintenance:

The EU Registry must be maintained and updated annually.

C7.2 – MethodClassification validity

Rationale:

The method classification 'WEIGH' (weighing) is only applicable to the offsite transfer of waste. A check is required to confirm that the method classification attribute has only been populated with 'WEIGH' under the OffsiteWasteTransfer feature type.

Criteria:

All occurrences of the methodClassification attribute will be checked within an XML file submission, 'WEIGH' shall only be populated within the OffSiteWasteTransfer feature type.

Consequences of failing:

An information message will be displayed specifying the attributes which have been incorrectly populated with 'WEIGH'. This will not prevent the release of the data envelope.

Dependencies to look-up tables or external data:

This check uses data present within the XML file submission.

Needs of maintenance:

No current needs for maintenance have been identified.

8. Derogation checks

C8.1 – Article 31 derogation compliance

Rationale:

Any countries reporting the Article 31 derogation for an LCP installation part are required to report the sulphur content for the indigenous solid fuel input and the minimum desulphurisation rate as set out in Part 5 of Annex V of the IED. A check is required to confirm that an indigenous solid fuel has been reported as fuel input and whether the sulphur content and desulphurisation rate have been reported.

Criteria:

This check is to be processed in two stages for ProductionInstallationParts that have had the derogation attribute populated with Article 31 in the EU Registry:

- **At least one of the reported fuelInputs must reflect an indigenous solid fuel type, i.e. Biomass, Coal, Lignite, Peat or OtherSolidFuels (not Patent Fuels).**
- **The DesulphurisationInformationType data type must be populated.**

Consequences of failing:

An information message will be displayed specifying the LCP installation part that has not met the specifications for reporting an Article 31 derogation. The message will highlight where a solid fuel or desulphurisation information has been omitted. This will not prevent the release of the data envelope.

Dependencies to look-up tables or external data:

This check will be required to search the EU Registry for ProductionInstallationParts and their derogation attribute data entries.

Needs of maintenance:

inspireId and derogation attributes must be maintained and updated within the EU Registry as required.

C8.2 – Article 31 derogation justification

Rationale:

Any countries reporting the Article 31 derogation for an LCP are required to comment on the non-feasibility of complying with emission limit values referred to in Article 30 (2) and (3) of the IED, provided that the current reporting year is the first year in which this derogation has been reported. A check is required to ensure that this technical justification has been provided given that derogation attribute has been populated with Article 31 in the EU Registry for the first time.

Criteria:

For ProductionInstallationParts that have had the derogations attribute populated with Article 31 in the EU Registry, historic submissions, where available, will be checked to verify whether the current reporting year is the first year in which the derogation has been reported. If so, the technicalJustification attribute should be populated with a character string. If no historic submissions are available, i.e. the installation part is new, and the derogation has been reported, then the technicalJustification attribute should be populated with a character string.

Consequences of failing:

A warning message will be displayed specifying the LCP installation part for which a technical justification has been omitted. This will not prevent the release of the data envelope.

Dependencies to look-up tables or external data:

This check requires a look-up table of ProductionInstallationPart derogations from the previous reporting year be added to the semantic data service.

Needs of maintenance:

The above-mentioned look-up table must be maintained and updated as required.

C8.3 – Article 35 derogation and proportionOfUsefulHeatProductionForDistrictHeating comparison

Rationale:

One of the conditions that must be met for countries to report the Article 35 derogation for an LCP installation part is that the proportion of useful heat production for district heating is equal to 50% or greater. This check is required to verify that for any LCP installation parts that have reported the Article 35 derogation in the EU Registry, the value reported for the proportion of useful heat production for district heating is at least 50%.

Criteria:

For ProductionInstallationParts that have had the derogation attribute populated with Article 35 in the EU Registry, the proportionOfUsefulHeatProductionForDistrictHeating attribute should be populated with a value representing a percentage equal to, or greater than, 50%.

Consequences of failing:

An information message will be displayed specifying the LCP installation part for which the proportion of useful heat production for district heating has been omitted or reported below 50%. This will not prevent the release of the data envelope.

Dependencies to look-up tables or external data:

This check will be required to search the EU Registry for ProductionInstallationParts and their derogation attribute data entries.

Needs of maintenance:

The EU Registry must be maintained and updated.

9. Confidentiality checks

C9.1 – Confidentiality overuse

Rationale:

The claim of confidentiality on environmental matters is limited by EU legislation and is expected to remain exceptional. Therefore, when designing the quality assurance mechanisms of the E-PRTR and LCP integrated reporting, feedback will be given on the use of confidentiality with a threshold signalling potential overuse of it (e.g. a maximum percentage of data types that can reasonably be confidential within a country report).

Guidance will be provided in the E-PRTR and LCP Integrated Reporting Manual for Reporters to elaborate further on cases where confidentiality is reasonable. If a country over-uses this designation, the case will

be sent to the ECs Directorate General – Environment (DG ENV) for judgement and a dialogue with the country will be initiated to discuss compliance with the Public Access to Environmental Information Directive. However, EEA will not reject data on the grounds of misuse of confidentiality unless instructed otherwise by DG ENV.

The data model for the E-PRTR and LCP integrated reporting contains multiple attributes within data types used across all feature types, where claims for confidentiality relative to the Public Access to Environmental Information Directive can be reported. A certain degree of confidentiality is anticipated; however, a check is required to ensure that the mechanisms used to claim confidentiality are not overused, posing limitations to the use of the data reported.

Criteria:

In a single XML file submission, the total number of feature types that contain the confidentialityReason attribute shall not respectively exceed 1% and ideally be less than 0.5%.

Consequences of failing:

A warning error, specifying the extent to which the 1% threshold was exceeded will be shown. Alternatively, an info message will be shown if the 0.5% threshold is exceeded, but the value produced is less than 1%. A list of all entities and pollutant releases/transfers for which confidentiality has been claimed will also be produced. Neither scenario will prevent the release of the envelope.

Dependencies to look-up tables or external data:

This check has no associated dependencies and no requirement for external data.

Needs of maintenance:

No current needs for maintenance have been identified.

10. Expected pollutant identification

C10.1 – EmissionsToAir outlier identification

Rationale:

Based on fuel input and average emission factors, expected SO₂, NO_x, and dust emissions from installation parts can be estimated. A strong deviation from the actual reported emissions may indicate a reporting error. It must be noted that differences exist between plants due to different technologies, plant sizes and operating conditions, therefore installation parts will only be flagged in case of strong deviation.

Criteria:

Average emission factors for LCP installation parts have been calculated based on the 2007-2012 LCP dataset. For the calculation, the top and bottom 2.5 % of emission factors were not taken into account.

These emission factors are subject to change following updates to the dataset on which they are based. Reported energyInputTJ for specified fuelInputs are multiplied by the factors listed in Table 4.2.

Table 4.2 Air emission factors

| fuelInput | Expected SO ₂ (t/TJ) | Expected NO _x (t/TJ) | Expected dust (t/TJ) |
|--|---------------------------------|---------------------------------|----------------------|
| Biomass | 0.0084 | 0.0703 | 0.0042 |
| Coal | 0.3463 | 0.1598 | 0.0202 |
| Lignite | 0.3463 | 0.1598 | 0.0202 |
| Liquid Fuels | 0.1999 | 0.1108 | 0.0089 |
| Natural Gas | 0.0007 | 0.0297 | 0.0006 |
| Other Gases (inclusive of all sub-categories) | 0.0111 | 0.0369 | 0.0007 |
| OtherSolidFuel (inclusive of all sub-categories) | 0.3463 | 0.1598 | 0.0202 |
| Peat | 0.3463 | 0.1598 | 0.0202 |

Note: The above table has been adapted from the LCP Data Checks 2016 ETC/ACM Technical Paper. These emission factors will be updated following the first round of E-PRTR and LCP Integrated Reporting.

Reported SO₂ emissions should not be larger by more than a factor of 20, or smaller by more than a factor of 100, than would be expected from fuel input using emission factors above.

Reported NO_x emissions should not be larger by more than a factor of 20, or smaller by more than a factor of 10, than would be expected from fuel input using emission factors above.

Reported dust emissions should not be larger by more than a factor of 20, or smaller by more than a factor of 100, than would be expected from fuel input using emission factors above.

Consequences of failing:

An information message will be displayed indicating the ProductionInstallationParts and pollutant for which reported emissions deviate from expected quantities, based on the reported fuelInput and emission factors above, by more or less than the threshold values, stipulated above.

Dependencies to look-up tables or external data:

This check is dependent on a look-up table populated with the emission factors for each fuelInput, listed above.

Needs of maintenance:

The above-mentioned look-up table will need to be maintained and updated as new data becomes available to recalculate the emission factors. This is particularly important when the first year of the integrated E-PRTR+LCP data is received to incorporate the wider range of fuel inputs accounted for. The range of OtherGases and OtherSolidFuels may also increase, in which case the look-up table will need to be expanded.

C10.2 – Energy input and CO₂ emissions feasibility**Rationale:**

CO₂ emissions reported by an E-PRTR facility can be estimated roughly from fuel input reported for an installation part. CO₂ emissions reported under E-PRTR facilities should not be lower than the emissions estimated from LCP installation part data. It must be acknowledged that emission factors for various fuel inputs will vary between facilities and as technologies and fuels change.

Criteria:

Expected CO₂ emissions are estimated based on an LCP InstallationPart's aggregated fuel input using the average emission factors⁸ listed in Table 4.3.

Table 4.3 Fuel emission factors

| Fuel input | | Reference Fuel | Emission factor (t CO ₂ /TJ) |
|-------------|-------------------|-----------------------------------|---|
| Biomass | | Wood/Wood Waste/Charcoal | 112.0 |
| Coal | | Coking Coal/Other Bituminous Coal | 94.6 |
| Lignite | | Lignite | 101.0 |
| LiquidFuels | | Gas/Diesel Oil | 74.1 |
| NaturalGas | | Natural Gas | 56.1 |
| OtherGases | Blast Furnace Gas | Blast Furnace Gas | 260.0 |
| | Coke Oven Gas | Coke Oven Gas | 44.4 |
| | Furnace Gas | Gas Works Gas | 44.4 |

⁸ IPCC (2006), Volume 2, page 2.16, table 2.2.

| Fuel input | | Reference Fuel | Emission factor (t CO ₂ /TJ) |
|-----------------|--------------|---------------------------------|---|
| | LPG | LPG | 63.1 |
| | Other | Coke Oven Gas | 44.4 |
| | Oxygen Steel | Oxygen Steel Furnace Gas | 182.0 |
| | Refinery Gas | Refinery Gas | 57.6 |
| OtherSolidFuels | Coke | Coke Oven Coke and Lignite Coke | 107.0 |
| | Other | Brown Coal Briquettes | 97.5 |
| | Patent Fuels | Patent Fuel | 97.5 |
| | Tar | Coal Tar | 80.7 |
| Peat | | Peat | 106.0 |

The expected value is then compared with the reported CO₂ emissions from the LCP's parent ProductionFacility, provided the expected CO₂ emissions are above the minimum threshold for reporting. Facilities will be flagged where their emissions are 20% lower, or 100% higher, than expected values.

Consequences of failing:

A warning error will be displayed highlighting that the CO₂ emissions from a facility deviate from expected emissions given the fuel inputs reported for associated LCP InstallationParts; the size of the deviation from expected values will also be specified. This will not prevent the release of the envelope.

Dependencies to look-up tables or external data:

This check requires the use of a look-up table with the data listed in table 2.2 of the IPCC (2006), Volume 2. It also requires data contained within the EU Registry to identify parent ProductionFacility and child ProductionInstallationPart relationship.

Needs of maintenance:

The above look-up table and EU Registry must be maintained and updated as required. The OtherGaseousFuels and OtherSolidFuels may be subject to additions, the above look-up table will therefore may need to be updated to include further fuels. In case of these additions, the appropriate emission factor values will be lifted from the IPCC 2006 Guidance, or updated version of this document.

C10.3 – Production Facility cross pollutant identification

Rationale:

There exist reliable relationships between emissions of certain pollutants whereby the quantity of emissions for a source, or indicator, pollutant can provide an indication of the expected maximum and minimum emissions for a range of resultant pollutants, given a specified activity at an E-PRTR facility. This check will use these known relationships, built into a Cross Pollutant Checking tool⁹, to identify expected pollutant emissions based on the reported emissions, and flag cases where reported emissions are above or below the expected range, or where expected pollutants have not been reported at all.

The current emission factors applied are maximum and minimum values found for the given activity in the EMEP/EEA Guidebook (EMEP, 2009) and IPCC Guidelines (IPCC, 2006). This check will incorporate 174 known cross pollutant relations; these have only been identified for pollutant releases to air and are weighted towards the most important pollutants and largest sectors. These emission factors are scheduled to be updated with the latest values from the EMEP 2016 Guidebook and the new parameters will subsequently be incorporated into this check.

It must be noted that these cross-pollutant relationships can only give an indication of expected emissions. As such, it is anticipated that there will certain scenarios where expected emissions will not be produced.

Criteria:

totalPollutantQuantityKg for specified pollutants, with associated mediumCode reflecting a release to air, will be assessed against a look-up table that documents the expected range for resulting pollutants. This look-up table takes into account EPRTRAnnexIActivity, and in some cases the main economic activity (or NACE code), reported in the EU Registry. At present the following resultant pollutants are cross checked against the following source pollutants, Table 4.4.

Table 4.4 Source and resulting pollutants

| Source pollutant | CO ₂ | NO _x |
|---------------------|---|-----------------|
| Resulting Pollutant | As and compounds Cd and compounds CO Cr and compounds Cu and compounds F and inorganic compounds Hg and compounds Ni and compounds NMVOC NO _x Pb and compounds i and compounds | CO ₂ |

⁹ http://acm.eionet.europa.eu/reports/ETCACM_TP_2014_10_EPRTMethodologyCPC_Incompl

| | | |
|--|---|--|
| | PCDD+PCDF (Dioxins and Furans) PFCS PM ₁₀ SO _x Zn and compounds | |
|--|---|--|

Source: E-PRTR data review

methodology (2017)

ProductionFacilities that are found to have emissions above or below the expected emissions range for any of the resulting pollutants will be flagged, including cases where expected resulting emissions are missing entirely.

Pollutant releases will be classified by the distance between the reported resulting pollutant emissions and the expected range for that pollutant, this classification is called the ‘expected emissions factor’. These classifications will provide additional information on the priority of the issue. The classifications are determined in two steps:

The distance between the reported resulting pollutant quantity and the expected resulting quantity is calculated:

$$\text{Reported resulting pollutant quantity} - \text{minimum or maximum expected resulting quantity} = \text{Distance}$$

The expected emissions factor is defined based on the size of the distance as a factor of the E-PRTR Regulation Annex II pollutant threshold:

$$\text{Distance} / \text{E-PRTR Regulation Annex II pollutant threshold} = \text{Expected emissions factor}$$

This check will return variable messages based on the size of the expected emissions factor and implied priority¹⁰.

Findings will be filtered based on emissions reporting thresholds, cases will be ignored where expected resulting emissions are below the Annex II threshold. It must be noted that the expected ranges are a result of best available techniques and data but are subject to change.

A caveat must also be noted in that if fossil CO₂ is reported as total CO₂, i.e. not accounting for biomass CO₂, this check will flag false positives.

Consequences of failing:

A warning message will be displayed indicating the ProductionFacilities for which resultant pollutant emissions to air are missing or low/high based on comparison with expected ranges.

This message will contain an additional comment on the priority of the finding based on the value of the expected emissions factor, as detailed in Table 4.5.

¹⁰ These priorities have been determined based on expert judgment in the E-PRTR data review methodology.

Table 4.5 Expected emission factor values

| Expected emissions factor value | Priority | Comment |
|---------------------------------|----------|---|
| Less than or equal to 2 | Low | The priority of the failure of this check has been classified as low based on the expected emissions factor. |
| Between 2 and 10 | Medium | The priority of the failure of this check has been classified as medium based on the expected emissions factor. |
| Above 10 | High | The priority of the failure of this check has been classified as high based on the expected emissions factor. |

Dependencies to look-up tables or external data:

This check depends on a look-up table of expected resulting pollutants and their ranges, dependant on specified activity.

Needs of maintenance:

The above-mentioned look-up table will need to be maintained and updated as the data and science on which it is based is updated.

11. ProductionFacility voluntary reporting checks

C11.1 - ProductionFacilityReports without transfers or releases

Rationale:

According to Article 5 of E-PRTR Regulation, ProductionFacility waste transfer, pollutant transfer and release data are only required above the threshold values set out in Annex II of the E-PRTR Regulation, for pollutant releases and transfers, and Article 5 (1b), for waste transfers. As such E-PRTR facilities with no releases/transfers above the threshold values are not required to be reported in the thematic data flow. Reporting errors can be identified by highlighting facilities with no reported releases/transfers of pollutants nor transfers of waste. It must be noted that releases and transfers below the thresholds are not required to be reported and as such do not necessarily indicate reporting errors.

Criteria:

Within a single XML file submission, ProductionFacilities will be flagged where no data has been populated for OffsiteWasteTransfers, OffsitePollutantTransfers nor PollutantReleases.

Consequences of failing:

An information message will be produced specifying the ProductionFacility for which no releases/transfers of pollutants nor transfers of waste have been reported.

Dependencies to look-up tables or external data:

This check has no associated dependencies and no requirement for external data.

Needs of maintenance:

No current needs for maintenance have been identified.

C11.2 – ProductionFacility releases and transfers reported below the thresholds

Rationale:

According to Article 5 of the E-PRTR Regulation, ProductionFacility waste transfer, pollutant transfer and release data are only required above the threshold values set out in Annex II, for pollutant releases and transfers, and Article 5 (1b), for waste transfers, of Regulation (EC) No 166/2006. As such E-PRTR facilities with no releases/transfers above the threshold values are not required to be reported in the thematic data flow. It is not expected that many E-PRTR facilities will report value below the thresholds. As such, a value reported below the threshold may represent an error. It must be noted that releases and transfers below the thresholds may be reported voluntarily and as such do not necessarily indicate reporting errors. Countries reporting known releases and transfers below the thresholds may overlook the relevant results of this check.

Criteria:

Within a single XML file submission, ProductionFacilities will be flagged where OffsiteWasteTransfers, OffsitePollutantTransfers or PollutantReleases have been reported below the threshold values set out in Annex II, for pollutant releases and transfers, and Article 5 (1b), for waste transfers, of Regulation (EC) No 166/2006.

Threshold values for PollutantReleases will vary by the medium into which they released, thus will be dependent on the reported mediumCode attribute. Similarly, threshold values for OffsiteWasteTransfers depend on whether the wasteClassification attribute is populated with HW or not and whether the transfer is transboundary in nature. Single pollutants are to be reported if the threshold for BTEX (the sum parameter of benzene, toluene, ethyl benzene, xylenes) is exceeded, even if the thresholds for the individual pollutants are not exceeded. In this case these pollutants will not be flagged.

Consequences of failing:

An information message will be produced specifying the OffsiteWasteTransfers, OffsitePollutantTransfers or PollutantReleases that have been reported below the threshold values.

Dependencies to look-up tables or external data:

This check depends on a look-up table populated with threshold values stipulated in Annex II of Regulation (EC) No 166/2006. This lookup table must account for the medium into which the pollutants are released, whether the waste is hazardous and whether the waste transfer is transboundary in nature.

Needs of maintenance:

The above-mentioned look-up table will need to be maintained.

12. Identification of release and transfer outliers

C12.1 - Identification of ProductionFacility release/transfer outliers against previous year data at the national level

Rationale:

Reported values for OffsiteWasteTransfers, OffsitePollutantTransfers or PollutantReleases that are significantly higher than the highest value reported in the previous year for the same E-PRTR Annex I activity within the same country may indicate a reporting error. This check will use a parameter that is 4 times the maximum value found in the previous reporting year for the same pollutant per activity per country. Reported data from ProductionFacilities that exceeds this parameter may indicate a reporting error and will be flagged for the attention of the MS.

Criteria:

Values reported for the totalWasteQuantityTNE and totalPollutantQuantityKg attributes, for all three OffsiteWasteTransfers, OffsitePollutantTransfers and PollutantReleases feature types, will be compared to parameter values derived from data from the previous year submissions, where available.

Parameter values will be derived by multiplying the highest reported value of a pollutant per medium, per E-PRTR Annex I activity, from a single country's submission by 4. These values will be held in a look-up table that can be used to compare to reported values from the active reportingYear. OffsiteWasteTransfers, OffsitePollutantTransfers and PollutantReleases will be flagged where these values exceed the parameter value.

This check will not apply where data for the previous year do not exist. The parameter value of 4 times the highest value from the previous year data is subject to review following the testing phases of the integrated LCP-EPTR thematic data input.

Consequences of failing:

A warning message will be displayed specifying the OffsiteWasteTransfers, OffsitePollutantTransfers, PollutantReleases and associated ProductionFacilities that exceed the parameter value.

Dependencies to look-up tables or external data:

This check will require access to a look-up table of the previous year's OffsiteWasteTransfer, OffsitePollutantTransfer and PollutantRelease data from which parameter values can be calculated. This

data will need to be conditional on the pollutant, medium and activity. It will also be required to access the EU Registry to identify the EPRTREnvironmentalActivity of the ProductionFacilities that have been flagged.

Needs of maintenance:

The look-up table containing previous year data from which parameter values are calculated will need to be maintained and updated annually.

C12.2 - Identification of ProductionFacility release/transfer outliers against national total and pollutant threshold

Rationale:

Individual reported values for OffsiteWasteTransfers, OffsitePollutantTransfers or PollutantReleases that account for a large proportion of a country's total emissions, for specific pollutants and activities, and that exceed the threshold values set out in Annex II of Regulation (EC) No 166/2006 by a significant amount can indicate a reporting error. This check will compare pollutant releases, to specific mediums, and transfers and waste transfers against the country totals for specified EPRTREnvironmentalActivities. Simultaneously, these transfers/releases will be compared to the threshold values. Releases/transfers will be flagged where the values are found to represent a large proportion of the country total, for the relevant activity that matches the facility, and is significantly larger than the relevant threshold.

Criteria:

Within a single XML submission, the totalWasteQuantityTNE and totalPollutantQuantityKg attributes, for all three OffsiteWasteTransfers, OffsitePollutantTransfers and PollutantReleases feature types, will be compared to an aggregated national total for that release/transfer, to the specified medium where relevant, for a specified EPRTREnvironmentalActivity that matches the EPRTREnvironmentalActivity attribute reported for the ProductionFacility in the EU Registry.

The reported transfer/release values will also be compared to the threshold values set out in Annex II of Regulation (EC) No 166/2006.

OffsiteWasteTransfers, OffsitePollutantTransfers, PollutantReleases and associated ProductionFacilities will be flagged where the reported value is >10% of the national total and >10,000 times the threshold value.

The defined thresholds above are subject to review following the testing phases of the integrated LCP-EPRTREnvironmental thematic data input.

Consequences of failing:

A warning message will be displayed specifying the OffsiteWasteTransfers, OffsitePollutantTransfers, PollutantReleases and associated ProductionFacilities that exceed the threshold conditions.

Dependencies to look-up tables or external data:

This check depends on a look-up table populated with threshold values stipulated in Annex II of Regulation (EC) No 166/2006. This lookup table must account for the medium into which the pollutants are released, whether the waste is hazardous and whether the waste transfer is transboundary in nature.

This check will also require access to a look-up table of the previous year's OffsiteWasteTransfer, OffsitePollutantTransfer and PollutantRelease data, aggregated at the national level, from which parameter values can be calculated. This data will need to be conditional on the pollutant, medium and activity.

This check will also be required to reference the EU Registry to identify the EPTRAnnexIActivity of the ProductionFacilities so as to match the reported transfer/ release values with the national total values for the same EPTRAnnexIActivity. **Needs of maintenance:**

The above look-up table of threshold values will need to be maintained and updated as required.

C12.3 - Identification of ProductionFacility release/transfer outliers against previous year data at the ProductionFacility level

Rationale:

Historical data for pollutant release/transfer and waste transfer from the previous year can provide a benchmark against which reported data can be compared to identify potential reporting errors. This check will reference the previous years' data to identify large changes in a ProductionFacility's reported values.

Criteria:

totalWasteQuantityTNE and totalPollutantQuantityKg attributes, for all three OffsiteWasteTransfers, OffsitePollutantTransfers and PollutantReleases feature types, will be compared against previous year data where available – this check will not be performed on new facilities.

OffsiteWasteTransfers, OffsitePollutantTransfers, PollutantReleases and associated ProductionFacilities will be flagged where the reported value exceeds the threshold limits below:

- OffsiteWasteTransfer: >10 times higher than previous year
- PollutantReleases and OffsitePollutantTransfers: >2 times higher than previous year
- All: >10 times lower than previous year

This comparison is specific to the pollutant and associated mediumCode for PollutantReleases, specific to pollutants for OffsitePollutantTransfers but aggregates OffsiteWasteTransfers by wasteClassification.

The defined thresholds above are subject to review following the testing phases of the integrated LCP-EPTR thematic data input.

Consequences of failing:

A warning message will be displayed specifying the OffsiteWasteTransfers, OffsitePollutantTransfers, PollutantReleases and associated ProductionFacilities that exceed the defined thresholds compared to the previous year data.

Dependencies to look-up tables or external data:

This check will require access to a look-up table of the previous year's OffsiteWasteTransfer, OffsitePollutantTransfer and PollutantRelease data against which the reportingYear data can be compared.

Needs of maintenance:

The above-mentioned look-up table of previous year data will need to be maintained and updated as required.

C12.4 – Identification of ProductionInstallationPart emission outliers against previous year data at the ProductionInstallationPart level.

Rationale:

Historical data for pollutant emissions from the previous year can provide a benchmark against which reported data can be compared to identify potential reporting errors. This check will reference the previous years' data to identify large changes in a ProductionInstallationPart's reported values.

Criteria:

Values reported for the EmissionsToAir attribute will be compared against previous year data where available – this check will not be performed on new installation parts.

EmissionsToAir values and associated ProductionInstallationParts will be flagged where the reported value is >2 times higher, or >10 times lower, than the previous year for the same pollutant.

The defined thresholds above are subject to review following the testing phases of the integrated LCP-EPTR thematic data input.

Consequences of failing:

A warning message will be displayed specifying the EmissionsToAir values and associated ProductionInstallationParts that exceed the defined thresholds compared to the previous year data.

Dependencies to look-up tables or external data:

This check will require access to a look-up table of the previous year's installation part emissions data against which the reportingYear data can be compared.

Needs of maintenance:

The above-mentioned look-up table of previous year data will need to be maintained and updated as required.

C12.5 - Time series consistency for ProductionFacility emissions

Rationale:

By viewing reported emissions from ProductionFacilities in relation to the whole time series data, reporting errors can be identified based on the degree to which the reported values deviate from the previous reports. This check is used to detect potentially inconsistent pollutant release values within the context of multi-annual reporting for a specific facility and its activity.

Criteria:

This check only applies to facilities that report large emissions and as such the first stage to this check identifies eligible ProductionFacilities. These are facilities whose lowest reported PollutantRelease values, across the time series, are greater than 20 times the E-PRTR Annex II pollutant threshold for the specified pollutant¹¹.

Once these ProductionFacilities have been identified, this check will flag ProductionFacilities where the pollutant release ratio (defined as the maximum reported release quantity divided by the minimum reported release quantity) exceeds a threshold value for any given year, including the reporting year. This threshold is currently set at ten¹². Hence, ProductionFacilities will be flagged where the following is true for any given year in the time series:

$$\text{maximum reported release} / \text{minimum reported release} > 10$$

This check will be performed on all reported pollutants released to air. This check does not apply for ProductionFacilities whose time series are not consistently available back to 2008. If a zero value is detected as the minimum reported release for the most recent reportingYear, the StatusType attribute will be referenced in the EU Registry and 'decommissioned' and 'disused' facilities' results will be disregarded.

Consequences of failing:

A warning message will be displayed indicating the ProductionFacility, PollutantRelease and reportingYear for which the pollutant release ratio threshold has been exceeded.

Dependencies to look-up tables or external data:

This check will require access to a look-up table populated with historical time series data for ProductionFacilities, their EPRTRAnnexIActivities and PollutantReleases to air data. This check will also need access to the EU Registry to cross reference the facility StatusType.

Needs of maintenance:

¹¹ Threshold value defined by expert judgment in the E-PRTR data review methodology.

¹² Defined by expert judgment in the E-PRTR data review methodology.

The above-mentioned look-up table of time series data needs to be maintained and updated annually.

C12.6 – Time series consistency for ProductionInstallationPart emissions

Rationale:

Emissions at a national level are expected to be similar from year to year given that an installation part remains functional. A large difference relative to the trend over the last few years can indicate a reporting error or omission. A check is required to ensure that total national emissions from installation parts are consistent with values reported in previous years. It must be noted that there are several legitimate reasons for considerable differences between years including the closure of installation parts or switching of fuel inputs.

Criteria:

The sum value of pollutant emissions, e.g. NO_x, from all ProductionInstallationParts within a country will be compared against an average value of total emissions over the previous three years. This check would flag an error if these two values are significantly different, as illustrated as an example for country 'X' in Table 4.6.

Table 4.6 Example of time series consistency checks

| Total NO _x emissions from ProductionInstallationParts in Country X | | | |
|---|--------|--------|---------|
| 2012 | 2013 | 2014 | Average |
| 115000 | 110000 | 105000 | 110000 |

| Total NO _x emissions from ProductionInstallationParts in Country X | | | |
|---|--------|--------------|----------------|
| 3-year average | 2015 | % difference | Error flagged? |
| 110000 | 200000 | 82% | Yes |

The national total EmissionsToAir quantities reported for SO₂, NO_x and dust should not exceed a national total value for the same pollutant averaged from the past three reporting years by more than 30%. Ideally, the national total values will not deviate by more than 10%, and less than 30%, from an average value derived from data over the previous three years.

Consequences of failing:

A warning message will be displayed indicating the pollutant that exceeds the three-year average by more than 30% at the national level.

An information message will be displayed indicating the pollutant that deviates from the three-year average by more than 10% or less than 30% at the national level.

Dependencies to look-up tables or external data:

This check will require a look-up table populated with national total quantities of SO₂, NO_x and dust reported by ProductionInstallationParts, averaged over the three previous reporting years.

Needs of maintenance:

The above-mentioned look-up table will need to be maintained and the average values updated annually to incorporate the data from the latest reporting year available.

13. Overview on inter-annual reporting consistency

C13.1 - Number of ProductionFacilities reporting releases and transfers consistency

Rationale:

Improvements in reporting completeness or incomplete reporting errors can be tracked by monitoring the number of facilities per country reporting releases and transfers to specific mediums annually. A check is required to compare the number of ProductionFacilities that report pollutant releases or transfers or waste transfers, to specified mediums, in the reporting year to the same statistics in the previous year.

Criteria:

This check will compare the number of ProductionFacilities per country that are reporting PollutantReleases to air, water and land, PollutantTransfers and OffsiteWasteTransfers in the current reportingYear to the number of ProductionFacilities reporting the corresponding releases and transfers in the previous reportingYear, where this data is available.

The check will raise a flag to the reporting MS where the number of ProductionFacilities reporting any of the releases or transfers has increased or decreased significantly compared to the previous reporting year. The number of reporting ProductionFacilities in the current reportingYear compared to the previous reportingYear shall not increase or decrease by 50% and ideally should not increase or decrease by 25%.

This check will not apply where data for the previous year do not exist. These statistical thresholds are subject to change following testing phases of the integrated LCP-EPTR thematic data input.

Consequences of failing:

A warning message will be displayed for the MS if the number of ProductionFacilities reporting releases or transfers to specific mediums changes by more than 50% between the reporting year and the previous year.

An information message will be displayed for the MS if the number of ProductionFacilities reporting releases or transfers to specific mediums changes by more than 25% between the reporting year and the previous year.

Dependencies to look-up tables or external data:

This check will depend on a look-up table containing the number of ProductionFacilities per country reporting releases or transfers to specific mediums in the previous year.

Needs of maintenance:

The above-mentioned look-up table will need to be updated and maintained.

C13.2 - Reported number of releases and transfers per medium consistency

Rationale:

Improvements in reporting completeness or incomplete reporting errors can be tracked by monitoring the inter-annual change in the number of pollutant releases and transfers and waste transfers reported into a specific medium (sorted by wasteClassification and wasteTreatment for OffsiteWasteTransfers), at a national level. A check is required to highlight the change in number of releases/transfers reported to specific mediums between reporting years.

Criteria:

The number of OffsitePollutantTransfers, PollutantReleases, attributed to specific mediumCodes, and OffsiteWasteTransfers, sorted by wasteClassification and wasteTreatment, is aggregated at the national level and compared to the same values for the previous year in a look-up table. MS will be alerted where the reported number of releases/transfers per medium changes between the reportingYear and the previous year data., where available.

This check will not apply where data for the previous year do not exist. The inter-annual increase or decrease in number of pollutant releases/transfers reported should not exceed 50% and ideally would not change by 25%.

Consequences of failing:

A warning message will be displayed if the number of reported OffsitePollutantTransfers, PollutantReleases, attributed to specific mediumCodes, and OffsiteWasteTransfers, sorted by wasteClassification and wasteTreatment, changes by more than 50% between the reporting year and the previous year.

An information message will be displayed if the change is greater than 25% between the reporting year and the previous year.

Dependencies to look-up tables or external data:

This check requires access to a look-up table containing the number of OffsiteWasteTransfers, OffsitePollutantTransfers and PollutantReleases reported for specific mediums from all ProductionFacilities at a national level.

Needs of maintenance:

The above-mentioned look-up table will need to be maintained and updated annually.

C13.3 - Reported number of pollutants per medium consistency

Rationale:

Improvements in reporting completeness or incomplete reporting errors can be tracked by monitoring the inter-annual change in the number of pollutants reported into a specific medium at a national level. A check is required to highlight the change in number of pollutants reported to specific mediums between reporting years.

Criteria:

The number of different pollutants reported for PollutantReleases, attributed to specific mediumCodes, and OffsitePollutantTransfers is aggregated at the national level and compared to the same values for the previous year in a look-up table. MS will be alerted where the reported number of pollutants per medium changes between the reportingYear and the previous year data, where available.

This check will not apply where data for the previous year do not exist. The inter-annual increase or decrease in number of pollutants reported should not exceed 50% and ideally would not change by 25%.

Consequences of failing:

A warning message will be displayed if the number of reported pollutants changes by more than 50% between the reporting year and the previous year.

An information message will be displayed if the change in number of reported pollutants is greater than 25% between the reporting year and the previous year.

Dependencies to look-up tables or external data:

This check requires access to a look-up table containing the number of pollutants reported for specific mediums from all ProductionFacilities at a national level.

Needs of maintenance:

The above-mentioned look-up table will need to be maintained and updated annually.

C13.4 - Quantity of releases and transfers consistency

Rationale:

Incomplete or inconsistent reporting can be identified by tracking significant changes in country level emissions for specific pollutant transfers and releases. Significant increases or decreases in the quantity of specific pollutant releases and transfers or waste transfers from one year to the next indicates fluctuations and/or missing data. A check is required to report back to the MS on these country level metrics.

Criteria:

This check will use a cumulative quantity value for all ProductionFacilities and ProductionInstallationParts for PollutantReleases to air, water and land, PollutantTransfers, OffsiteWasteTransfers and EmissionsToAir for all specified pollutants/wasteClassifications. These values will be compared to the corresponding cumulative values from the previous year's data, available in a look-up table. The inter-annual increase or decrease in quantity of releases/transfers for specific pollutants/wasteClassifications should not exceed 50% and ideally would not change by 25%.

This check will not apply where data for the previous year do not exist. These statistical thresholds are subject to change following testing phases of the integrated LCP-EPTR thematic data input.

Consequences of failing:

A warning message will be displayed for the MS if the quantity of releases/transfers for specific pollutants/wasteClassifications increase or decrease by 50% or more between the reporting year and the previous year.

An information message will be displayed if the quantity of releases/transfers increase or decreases by 25% or more. These messages will indicate which pollutant and medium combination (or wasteClassification for OffsiteWasteTransfers) has exceeded the inter-annual threshold change value.

The output of this check could also include a graphical display, as illustrated in Figure 4.1.

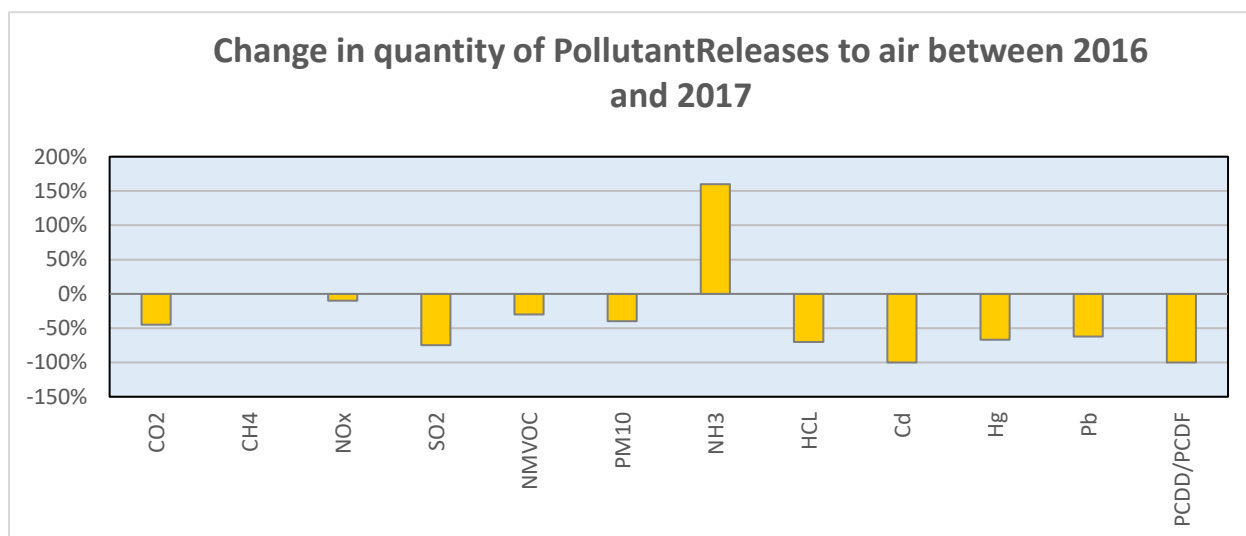


Figure 4.1 Example of a graphical illustration check

Dependencies to look-up tables or external data:

This check will depend on a look-up table populated with previous year transfer and release data

Needs of maintenance:

The above-mentioned look-up table will need to be maintained and updated annually.

14. Verification of emissions against European level data

C14.1 – Identification of top 10 ProductionFacility releases/transfers across Europe

Rationale:

E-PRTR facilities reporting pollutant quantities that account for a significant proportion of the total reported release/transfer quantity at the European level can indicate a potential reporting error and provide information on the largest emitters across Europe. E-PRTR facilities that have moved into the top 10 for largest releases or transfers across Europe compared to the previous reporting year may indicate a reporting error as the largest emitting ProductionFacilities are not expected to change much between reporting years.

At the time of data submission, there will not be a consolidated database of European level data from the current reporting year to compare against. As a result, this check will use European level data from the previous year to compare against.

Criteria:

Pollutant releases into specific mediums, sorted by EPRTAnnexIActivity and ProductionFacility, are compared against a list of top 10 emitting ProductionFacilities for the respective pollutants, from previous year data. Similarly, waste transfers, organised by wasteClassification, wasteTreatment and EPRTAnnexIActivity, are compared against a list of top 10 ProductionFacilities from previous year data.

ProductionFacilities are flagged where reported values are large enough to place the facility in the top 10 if they were not already listed.

Consequences of failing:

An information message will be displayed indicating the ProductionFacilities, and relevant PollutantReleases, OffsitePollutantTransfers and OffsiteWasteTransfers, that rank among the top 10 at the European level where they were not already listed.

Dependencies to look-up tables or external data:

This check will require access to a look-up table containing a list of the top 10 emitting ProductionFacilities across Europe from the previous year for pollutant releases and transfers into specific mediums, sorted by EPRTAnnexIActivity, and waste transfers, sorted by wasteClassification, wasteTreatment and EPRTAnnexIActivity.

This check will also need to reference the EU Registry to cross-check the EPRTAnnexIActivity for individual ProductionFacilities.

Needs of maintenance:

The above-mentioned look-up table will need to be updated annually. The EU Registry must be maintained and updated.

C14.2 – Identification of ProductionFacility release/transfer outliers against European level data

Rationale:

E-PRTR facilities reporting pollutant quantities that account for a significant proportion of the total reported release/transfer quantity at the European level can indicate a potential reporting error and provide information on the largest emitters across Europe. A check is required to identify individual facilities reporting pollutant and waste releases/transfers that represent >90% of the European total for a specific pollutant, and medium, or specific waste classification and treatment.

At the time of data submission, there will not be a consolidated database of European level data from the current reporting year to compare against. As a result, this check will use European level data from the previous year to compare against. To avoid unnecessary flags, this check will not evaluate pollutant releases to land as there are very few E-PRTR facilities reporting releases to land currently. This is subject to review as reporting completeness improves.

Criteria:

Reported quantities, for the current reportingYear, for PollutantReleases, OffsitePollutantTransfers and OffsiteWasteTransfers will be cross-checked against a look-up table that contains European totals from the previous reporting year for specific pollutants, and mediums, and specific wasteClassifications and wasteTreatments.

Any ProductionFacility reporting a release/transfer quantity in the current reporting year that represents >90% of the European total value for the pollutant/medium or wasteClassification/wasteTreatment for the previous year will be flagged as a potential error.

Consequences of failing:

A warning message will be displayed indicating the ProductionFacility for which a PollutantRelease, OffsitePollutantTransfers or OffsiteWasteTransfer has been reported that represents >90% of the total quantity for the specified pollutant/medium or wasteClassification/wasteTreatment across Europe in the previous years' data.

Dependencies to look-up tables or external data:

This check depends on a look-up table populated with aggregated total release/transfer values for specific pollutants/mediums and wasteClassifications/wasteTreatments across Europe from the previous reporting year.

Needs of maintenance:

The above-mentioned look-up table will need to be maintained and updated annually.

15. Verification of national emissions against external datasets

C15.1 – Comparison of PollutantReleases and EmissionsToAir to CLRTAP/NECD and UNFCCC/EU-MMR National Inventories

Rationale:

The national emissions reported under CLRTAP (air pollutants) and UNFCCC (greenhouse gases) can be used to verify the emissions to air reported under the E-PRTR and LCP Integrated Reporting. A direct comparison is difficult because the reporting structures and thresholds differ between the E-PRTR and LCP Integrated Reporting and reporting under the both Conventions. However, as a consequence of the reporting thresholds, the national totals for E-PRTR and LCP Integrated Reporting should be lower those reported under either Convention. This relationship is used to verify the national totals for specific pollutants emitted to air.

Criteria:

This check will calculate the national totals of PollutantReleases to air (ProductionFacilities), and EmissionsToAir (ProductionInstallationParts) for individual pollutants. These will be compared to corresponding national totals in the CLRTAP and UNFCCC National Inventories, using a look-up table. For pollutants released by ProductionFacilities, this will mean comparing against both inventories. However, for pollutants released by ProductionInstallationParts, this will mean comparing against the CLRTAP only. In both cases, this will require calculating an aggregated total for all sectors in the CLRTAP and UNFCCC inventories.

The national total for any given pollutant should not exceed the value found in the CLRTAP or UNFCCC National Inventory.

It must be noted that CO_e air emissions reported under the E-PRTR and LCP Integrated Reporting do not follow IPCC Guidelines in that they contain CO₂ from biomass. As a result, countries that report high biomass consumption (e.g. Sweden) may report CO₂ emissions that exceed the values reported under the UNFCCC/EU-MMR National Inventory and this check will provide a false positive.

Both the CLRTAP and UNFCCC national inventories are reported two years in arrears, i.e. data from 2017 will be submitted two years later, in 2019. This matches the reporting delay for the E-PRTR and LCP integrated reporting and as such this check will evaluate all databases with reference to the same reporting year.

Consequences of failing:

A warning message will be displayed indicating the pollutants that have exceeded the corresponding values reported under CLRTAP or UNFCCC Conventions.

Dependencies to look-up tables or external data:

This check depends on a look-up table populated with the most recent national emissions values available from CLRTAP and UNFCCC National Inventories. These inventories are available from the links below:

Air pollutants (CLRTAP): http://www.eea.europa.eu/ds_resolveuid/DAT-16-en (EEA permalink to the latest version).

Greenhouse gases (UNFCCC): http://www.eea.europa.eu/ds_resolveuid/DAT-13-en (EEA permalink to the latest version).

Needs of maintenance:

The above-mentioned look-up table will need to be maintained and updated annually with the latest data available from the CLRTAP and UNFCCC national inventories.

16. Miscellaneous checks

C16.1 - Significant figure format compliance

Rationale:

All ProductionFacility and ProductionInstallationPart release and transfer data must be reported to three significant digits. This does not refer to the statistical or scientific uncertainty, but reflects the accuracy of the reported data. A check is required to ensure the data has been reported to the correct level of detail.

Criteria:

totalWasteQuantityTNE, totalPollutantQuantityKg and totalPollutantQuantityTNE attributes, contained within OffsiteWasteTransfer, OffsitePollutantTransfer, PollutantRelease and EmissionsToAir feature types, must be populated with numerical values to three significant digits.

Consequences of failing:

A warning message will be produced, specifying all transfers and releases, and associated ProductionFacilities, which have not met the numerical format reporting requirements. This will not prevent the release of the envelope.

Dependencies to look-up tables or external data:

This check has no associated dependencies and no requirement for external data.

Needs of maintenance:

No current needs for maintenance have been identified.

C16.2 - Percentage format compliance

Rationale:

The FME process is unable to recognise a percentage value format, as such percentage values must be populated using decimal format that refers to a proportion of 1 (representing 100%). For example 64% should be reported as 0.64. Values reported greater than 1, representing more than 100%, will lead to non-sensical data.

Criteria:

The following attributes must be populated with percentage values: proportionOfUsefulHeatProductionForDistrictHeating, desulphurisationRate and sulphurContent. These attributes must be populated with decimal values ≤ 1 .

Consequences of failing:

A warning message will be displayed specifying the attributes which have been populated with a value representing a percentage greater than 100%.

Dependencies to look-up tables or external data:

This check has no associated dependencies and no requirement for external data.

Needs of maintenance:

No current needs for maintenance have been identified.

C16.3 - totalPollutantQuantityTNE blank

Rationale:

totalPollutantQuantityTNE is a mandatory field for any emissions reported from a ProductionInstallationPart.

Criteria:

The totalPollutantQuantityTNE attribute for any emission to air must not be left unpopulated.

Consequences of failing:

A blocking error will be displayed specifying the attributes which have been left unpopulated.

Dependencies to look-up tables or external data:

This check has no associated dependencies and no requirement for external data.

Needs of maintenance:

No current needs for maintenance have been identified.

C16.4 - totalWasteQuantityTNE, totalPollutantQuantityKg blank check

Rationale:

totalWasteQuantityTNE and totalPollutantQuantityKg are mandatory fields for any waste or pollutant transfers and emission releases reported from a ProductionFacility.

Criteria:

The totalWasteQuantityTNE and totalPollutantQuantityKg attribute for any pollutant release, pollutant transfer or waste transfer must not be left unpopulated.

Consequences of failing:

A blocking error will be displayed specifying the attributes which have been left unpopulated.

Dependencies to look-up tables or external data:

This check has no associated dependencies and no requirement for external data.

Needs of maintenance:

No current needs for maintenance have been identified.

C16.5 - numberOfOperatingHours blank check

Rationale:

numberOfOperatingHours is a mandatory field for LCPs.

Criteria:

The numberOfOperatingHours attribute for any ProductionInstallationPart reported as an LCP must not be left unpopulated.

Consequences of failing:

A warning message will be displayed specifying the attributes which have been left unpopulated.

Dependencies to look-up tables or external data:

This check has no associated dependencies and no requirement for external data.

Needs of maintenance:

No current needs for maintenance have been identified.

C16.6 - energyInput blank check

Rationale:

energyInput is a mandatory field for any fuelInput reported from a ProductionInstallationPart.

Criteria:

The energyInput attribute for any ProductionInstallationPart must not be left unpopulated.

Consequences of failing:

A blocking error will be displayed specifying the attributes which have been left unpopulated.

Dependencies to look-up tables or external data:

This check has no associated dependencies and no requirement for external data.

Needs of maintenance:

No current needs for maintenance have been identified.

C16.7 - Non-mandatory blank or trivial attribute check

Rationale:

Ideally, a GML file submission should not contain any empty fields or trivial entries (e.g. a space, comma, fulstop, hyphen etc.). For example, `<numberOfEmployees></numberOfEmployees>` should be excluded from the GML file by the reporter as there is no data in the field. GML files should be generated to contain only fields where data is being reported. A check is therefore required to flag blank fields that are non-mandatory.

Criteria:

All attributes will be checked for blank entries or trivial characters only. Empty or meaningless fields will be flagged.

Consequences of failing:

A warning error, specifying the attribute(s) which have been reported as blank or with trivial characters only. This will not prevent the envelope being released. This check may be changed to a blocking error in the future.

Dependencies to look-up tables or external data:

This check has no associated dependencies and no requirement for external data.

Needs of maintenance:

No current needs for maintenance have been identified.

C16.8 – namespace check

Criteria:

The number of entities reported under each unique namespace attribute will be flagged.

An information message will be displayed, showing a count of the entities reported under each unique namespace attribute. This will not prevent the envelope being released.

Dependencies to look-up tables or external data:

This check has no associated dependencies and no requirement for external data.

5 Annex

Terminology and abbreviations

Blocking error: Error whose seriousness implies the rejection of the report and therefore blocks the workflow in CDR. XML files containing blocking errors are not considered valid and have to be corrected before the EU level (i.e. EEA) proceeds to their aggregation to the EU database.

CDR: Central Data Repository

Data types: A data model element which defines characteristics of data and which operations can be performed on the data.

E-PRTR: European Pollutant Release Transfer Register

Feature type: Represents a class of data together with relevant attributes

FME process: The process by which a pre-defined Microsoft Access template, populated with thematic E-PRTR and LCP data, is converted to an XML file for submission to the CDR. This process is based on **Feature Manipulation Engine** software and is hosted on the E-PRTR and LCP integrated data reporting EIONET web page.

IED: Industrial Emissions Directive (Directive 2010/75/EU).

Information message: Potential error or suspicious piece of data which advises the reporter to double check correctness. No action will be required by the data manager at EEA.

LCP: Large combustion plant.

Production Facility: One or more installations on the same site that are operated by the same natural or legal person. A Production Facility is a special kind of Activity Complex.

Production Installation Part: Represents a specific technical part of the installation, developing a representative functionality that should be registered under the legislation.

Production Site: Represents the geographical location of the facility or a piece of land where the facility was, is, or is intended to be located.

Schema: This describes the structure and content of XML file data. It defines the elements, attributes and data types of the XML data.

Sematic data service: An object-oriented search engine where you can search for the content of data in Eionet.

Warning: error which does not block the submission of the file but identifies an issue which very likely distorts the dataset. For errors of this nature the EEA, as part of the dataflow management, could enquiry the reporter in order to clarify or correct the affected pieces of data.

XML: Extensible Markup Language (a markup language that defines a set of rules for encoding documents. This format is readable by both humans and machines).