

# Quality assurance logic

EU Registry on Industrial Sites

Document for users

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Cover design: EEA  
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## Acknowledgments

This project plan was prepared by the [European Environment Agency](#) (EEA) in cooperation with the [European Topic Centre for Air pollution, Transport, Noise and Industrial Pollution](#) (ETC/ATNI).

Should you have any need of clarification, please contact [industrial.emissions@eea.europa.eu](mailto:industrial.emissions@eea.europa.eu).

## Version control

Version number	Date	Description
<b>0.0</b>	May 2017	Draft subject to countries' views
<b>0.1</b>	July 2017	Draft for internal discussion taking into account countries' comments
<b>1.0</b>	August 2017	Final version for discussion with IT developers
<b>2.0</b>	September 2018	Updated to accommodate IED Commission Implementing Decision
<b>3.0</b>	February 2019	Updated to resolve remaining issues before finalisation of the workflow
<b>4.0</b>	April 2019	Updated with new checks and minor edits to code list checks
<b>5.0</b>	January 2020	Update with amendment to C1.1 and C1.3 to remove derogationDurationEndDate, addition of C13.10
<b>6.0</b>	June 2020	Update to add checks C13.11 and C13.12. C13.1 updated to reflect required format for ETS identifiers.

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# 1 Objectives of the quality assurance

As part of an initiative to streamline the reporting of industrial emissions, the EU Registry on Industrial Sites (hereafter EU Registry) is planned as a coherent and consistent database of industrial emission entities that also centralises existing mechanisms for the collection of administrative facility data. Comprehensive validation and checks of integrated and coherent data submissions to the EU Registry should lead to better assessments of existing and proposed environmental policies.

The quality assurance logic for the EU Registry as described in this document is designed to fulfil two key objectives:

- Ensure that the connectivity between entities and spatial objects is retained over time, building a coherent database of all administrative data for industrial reporting across the member states.
- Enforce more complex aspects and interdependencies of the data model for the EU Registry, reducing the potential for nonsensical data.

The EU Registry is specifically designed to address inconsistencies, duplications and omissions arising from previously separate reporting obligations. Consequently, identifying consistency across years for what in actuality are the same industrial facilities and installations is an important aspect of the quality assuring submissions to the EU Registry, as is ensuring completeness and logical consistency of the various required data attributes.

## 2 Background

This document is one of three key documents describing the EU Registry. The Data Model Documentation outlines the key structure and basic requirements of the EU Registry. The other key document is referred to as the 'Manual for Reporters' and contains a comprehensive detailed breakdown of the reporting requirements, methods of reporting and submission procedure. A similar set of documents has also been generated to cover the thematic dataflow of European Pollutant Release and Transfer Register (E-PRTR) and large combustion plant (LCP) data. The latter will refer to the administrative data contained in the EU Registry, as that will be its reference dataset for the identification of facilities and plants.

Checks described here include pre-existing quality assurance and quality control (QA/QC) checks on administrative data collected as part of E-PRTR reporting (under Regulation (EC) No. 166/2006) and LCP reporting (under Chapter III and Article 72 of the Industrial Emissions Directive [IED], 2010/75/EU). There are also checks for the reporting requirements detailed in the IED Commission Implementing Decision<sup>1</sup>. The data model for the EU Registry has been designed to be compliant with the INSPIRE Data Specification on

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<sup>1</sup> Formally referred to as the 'Commission Decision on establishing the type, format and frequency of information to be made available by the Member States for the purposes of reporting on the implementation of Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions'. There will be a formal reference number once the Decision has been published by the Commission.

Production and Industrial Facilities – Technical Guidelines<sup>2</sup> so certain checks focus on ensuring that requirements for INSPIRE identifiers, such as uniqueness and traceability, are met.

The checks detailed within this document are based on the premise that an XML submission is compliant with the schema specified in the EU Registry data model documentation<sup>3</sup>. It is expected that reporting countries will receive standard CDR warnings for invalid XML that does not comply with the basic requirements of the EU Registry data model (e.g., problems with code values, data formatting, multiplicity or referential integrity); such issues are not discussed here. The focus of the checks in this document is on more complex content-related issues and dependencies, and on ensuring coherency both within a submission and with data previously submitted to the EU Registry.

### 3 Summary of QA/QC checks

Each check can be categorised according to whether it applies to just a single XML submission and the relationships between attributes contained within that submission, or whether it compares between the contents of an XML submission and data previously submitted to the EU Registry. The latter category of checks is only applicable once a reporting country has submitted to the EU Registry for an earlier reporting year.

It should be noted that these checks should be read in the context of the full data model documentation for the EU Registry, and more specifically are tailored towards the ‘streamlined view’, displayed in Figure 4a of that documentation.

All the checks described here will be run as a series of scripts and 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 CDR envelope
- Warnings: feedback messages of serious nature that do not prevent the submission to happen
- Information messages: feedback messages that do not necessarily signal an error but a significant aspect of the data submitted that can help to improve its quality.

It is expected that after submission EEA staff will review in particular certain warnings that may warrant further investigation, such as over-usage of confidentiality designations or not providing address details for on-shore facilities. EEA and European Commission (EC) staff will also be able to use submissions to the EU Registry to check whether information reported on derogations is consistent with official declarations made by Member States to the European Commission.

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:

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<sup>2</sup> <http://inspire-regadmin.jrc.ec.europa.eu/dataspecification/ThemeOverview.action?hideMenu=&themeId1=pf>

<sup>3</sup> <http://dd.eionet.europa.eu/schemaset/euregistryonindustrialsites/view>



- C3.1 – High proportion of new inspirelds (RY2018 and later)
- C4.5 – Identification of ProductionSite duplicates within the database (RY2018 and later)
- C4.6 – Identification of ProductionFacility duplicates within the database (RY2018 and later)
- C4.7 – Identification of ProductionInstallation duplicates within the database (RY2018 and later)
- C4.8 – Identification of ProductionInstallationPart duplicates within the database (RY2018 and later)
- C4.9 – ProductionSite and Facility Continuity (RY2018 and later)
- C4.10 – Missing ProductionFacilities, previous submissions (RY2018 and later)
- C4.11 – Missing ProductionInstallations, previous submissions (RY2018 and later)
- C4.12 – Missing ProductionInstallationsParts, previous submissions (RY2018 and later)
- C5.6 – Coordinate continuity (RY2018 and later)
- C6.2 – EPRTRAnnexIActivity continuity (RY2018 and later)
- C6.4 – IEDAnnexIActivity continuity (RY2018 and later)
- C7.5 – Decommissioned to functional plausibility (RY2018 and later)
- C9.3 – permitURL to dateOfGranting comparison (RY2018 and later)
- C10.6 – District heat plant derogation continuity (RY2018 and later)
- C10.7 – Transitional National Plan derogation continuity (RY2018 and later)
- C13.4 – nameOfFeature continuity (RY2018 and later)

## 4 Detailed parameters for each QA/QC check

### 1. Data control checks

#### C1.1 – 2017 reporting year versus 2018 and later reporting years

**Rationale:**

The data model and XML for the EU Registry is designed to handle both 2017 reporting and 2018 and later reporting. The reporting requirements for 2018 and onwards include additional data fields specified in the annex of IED Commission Implementing Decision. To facilitate this, the data model handles attributes according to a [0..1] multiplicity, meaning attributes can be left unpopulated, therefore enabling reporters to populate only those attributes that are required for the 2017 reporting year. From the 2018 reporting year onwards, the valid multiplicity will need to be changed to reflect the mandatory nature of the attributes as per the Commission Implementing Decision (which in some cases requires reporting of fields only from the 2018 reporting year). As this cannot be changed directly in the data

model a check is required to enforce the population of certain attributes for the 2018 reporting year and later.

**Criteria:**

If the 'reportingYear' attribute in the 'ReportData' feature type, is populated with a year of 2018 or later, the following attributes must be reported for an IED installation (Denoted by populating the 'installationType' attribute with a code list value indicating the installation is subject to the IED):

- ProductionInstallation feature type:
  - publicEmissionMonitoring
  - BATConclusion
- SiteVisitsType data type referenced in the siteVisit attribute of the ProductionInstallation feature type:
  - SiteVisitURL
- BATDerogationType referenced in the BATDerogation attribute of the ProductionInstallation feature type (only if subject to BAT Derogation under Article 15[4] of the IED, i.e. if the BAT DerogationIndicator Boolean = True):
  - publicReasonURL
  - BATAEL
  - derogationDurationStartDate
- StricterPermitConditionsType data type referenced in the stricterPermitConditions attribute of the ProductionInstallation feature type:
  - StricterPermitConditionsIndicator
  - Article14(4)
  - Article 18
  - And if the 'StricterPermitConditionsIndicator' is set to 'True'
    - BATAEL

Several attributes that pertain to 2018 reporting and beyond retain [0..1] multiplicity, due to their optionality within the Commission Implementing Decision (for example: the 'ETSIdentifier' attribute). These attributes will not be checked, but reporters are advised to consider these when reporting, as described within the Manual for Reporters.

**Consequences of failing:**

A blocking error will be displayed, specifying which entities 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.

## C1.2 – Facility Type

### Rationale:

The data model and XML schema designed for the EU Registry are designed to adhere to a strict geographical hierarchy of entities. There are select circumstances where reporting may be required for entities such as installation parts or installations which do not have parent entities subject to either the IED or E-PRTR Regulation. To report such entities the geographical hierarchy is still required but reporters may populate minimal information at each parent level. To enable this, the ProductionFacility feature type contains the attribute 'facilityType', which is in turn populated using the 'FacilityTypeValue' code list. If this code list is used to populate the attribute to indicate that this facility is subject to the E-PRTR Regulation, then a check is required to enforce the population of attributes which fulfill the reporting requirements of E-PRTR facilities.

### Criteria:

If the facilityType attribute is populated with a value that indicates the facility is subject to the E-PRTR, then the following attributes must be reported, in addition to other attributes which are mandatory (such as facilityName):

- CompetentAuthority data type referenced in the competentAuthorityEPTR attribute within the ProductionFacility feature type:
  - organisationName
  - individualName
  - electronicMailAddress
  - telephoneNo
  - Address (which reference a further data type 'AddressDetails' all attributes within this data type should be populated excluding 'confidentialityReason', this cannot be populated for the reasons detailed in C12.1 – Confidentiality restriction)
- parentCompanyDetails data type referenced in the parentDetails attribute within the ProductionFacility feature type:
  - parentCompanyName
- EPTRAnnexIActivity data type referenced in the EPTRAnnexIActivity attribute within the ProductionFacility feature type:
  - mainActivity

### Consequences of failing:

A blocking error will be displayed, specifying which facilities 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.

### C1.3 – Installation Type

#### Rationale:

The data model and XML schema designed for the EU Registry are designed to adhere to a strict geographical hierarchy of entities. There are select circumstances where reporting may be required for entities such as installation parts or installations which do not have parent entities subject to either the IED or E-PRTR Regulation. To report such entities the geographical hierarchy is still required but reporters may populate minimal data at each parent level. To enable this the ProductionInstallation feature type contains the attribute 'installationType', which is in turn populated using the 'InstallationTypeValue' code list. If this code list is used to populate the attribute to indicate that this installation is subject to the IED, then a check is required to enforce the population of attributes which fulfil the reporting requirements of the IED and CID.

#### Criteria:

If the InstallationType attribute is populated with a value that indicates the installation is subject to the IED, then the following attributes must be reported in the 2017 reporting year:

- ProductionInstallation feature type:
  - baselineReportIndicator
- CompetentAuthority data type referenced in the competentAuthorityPermit and competentAuthorityInspections attributes within the ProductionInstallation feature type:
  - organisationName
  - individualName
  - electronicMailAddress
  - telephoneNo
  - Address (which reference a further data type 'AddressDetails' all attributes within this data type should be populated excluding 'confidentialityReason', this cannot be populated for the reasons detailed in C12.1 – Confidentiality restriction)
- SiteVisitsType data type referenced in the siteVisits attribute within the ProductionInstallation feature type:
  - siteVisitNumber
  - and from the 2018 reporting year onwards, the SiteVisitURL
- PermitDetails data type referenced in the permit attribute within the ProductionInstallation feature type:
  - permitGranted
  - permitReconsidered
  - PermitUpdated.
- IEDAnnexIActivityType data type referenced in the IEDAnnexIActivity attribute within the ProductionInstallation feature type:
  - mainActivity

And from the 2018 reporting year:

- ProductionInstallation feature type:
  - publicEmissionMonitoring
  - BATconclusions
- StricterPermitConditionsType data type referenced in the stricterPermitConditions attribute within the ProductionInstallation feature type:
  - stricterPermitConditionsIndicator
  - article14.4
  - article18
- BATDerogationType data type referenced in the BATDerogation attribute within the ProductionInstallation feature type (if subject to BAT Derogation under Article 15[4] of the IED):
  - publicReasonURL
  - BATAEL
  - derogationDurationStartDate

#### **Consequences of failing:**

A blocking error will be displayed, specifying which entities 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.

## **2. Code list checks**

### **C2.0 – Code list checks**

#### **Rationale:**

The feature types listed in the table below 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.

Check number	Feature type(s)	Attribute	Code list
C2.1	ProductionFacility	mainActivity	EPTRAnnexIActivityValue
C2.2	ProductionFacility	otherActivity	EPTRAnnexIActivityValue
C2.3	ProductionInstallation	mainActivity	IEDAnnexIActivityValue
C2.4	ProductionInstallation	otherActivity	IEDAnnexIActivityValue
C2.5	ReportData	countryId*	CountryCodevalue
C2.6	All feature types excluding 'ReportData'	confidentialityReason	ReasonValue
C2.7	ProductionFacility	facilityType*	FacilityTypeValue
C2.8	ProductionInstallation	installationType*	InstallationTypeValue
C2.9	ProductionInstallation	baselineReportIndicator	BaselineReportValue
C2.10	ProductionInstallation	BATConclusion	BATConclusionValue
C2.11	ProductionInstallation	BATAEL	BATAELValue
C2.12	ProductionInstallationPart	specificConditions	Article51Value
C2.13	All feature types, excluding 'ReportData' and 'ProductionSite'	statusType*	ConditionOfFacilityValue
C2.14	ProductionInstallationPart	derogation	DerogationValue
C2.15	ProductionInstallationPart	plantType*	PlantTypeValue
C2.16	ProductionInstallation	otherRelevantChapters	RelevantChapterValue
2.17	ProductionFacility	Function*	NACEValue

#### Dependencies to look-up tables or external data:

These checks are dependent on the code lists found in the root data dictionary:

<https://dd.eionet.europa.eu/vocabularies>

The format of the specific code list URLs is

<http://dd.eionet.europa.eu/vocabulary/euregistryonindustrialsites/CodeListValue>

e.g. <http://dd.eionet.europa.eu/vocabulary/euregistryonindustrialsites/EPTRAnnexIActivityValue/>

**Needs of maintenance:**

The above code lists will need to be maintained.

### 3. InspireIds checks

#### C3.1 – High proportion of new inspireIds (RY2018 and later)

**Rationale:**

There is a need to identify submissions which report a high proportion of new inspireIds within a single XML submission, implying a large array of newly reported entities within the country.

**Criteria:**

All inspireIds within a single XML submission will be compared to the inspireIds in the look-up table, for the same reporting country. The amount of inspireIds, found in both the submission and the look-up table, will be evaluated in the context of the total amount of inspireIds in the XML submission. The number of new IDs within a single XML submission should not exceed 50% of the total number of inspireIds, and ideally be less than 20%. This check will not be performed in the first year of submission (reporting year 2017), as this is a new mechanism and therefore InspireIds will have not been previously defined.

**Consequences of failing:**

Provide a warning error, specifying all new inspireIds, if the 50% threshold is exceeded. Alternatively, an info message will be produced if the number of new inspireIds, exceeds 20%, but is less than the warning error threshold. Neither scenario will prevent the release of the envelope.

**Dependencies to look-up tables or external data:**

This check is dependent on data contained within the look-up table.

**Needs of maintenance:**

The above look-up will need to be maintained.

### C3.2 – ProductionSite inspireId uniqueness

**Rationale:**

The success of the EU Registry is dependent on the correct use of inspireIds. This needs to be unique in order to differentiate between different ProductionSites within a XML submission. A check is required in order to confirm uniqueness at this level of the geographical hierarchy.

**Criteria:**

All inspireIds specified for a ProductionSite within a single XML 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.

### C3.3 – ProductionFacility inspireId uniqueness

**Rationale:**

The success of the EU Registry is dependent on the correct use of inspireIds. This needs to be unique in order to differentiate between different ProductionFacilities within a XML submission. A check is required in order to confirm uniqueness at this level of the geographical hierarchy.

**Criteria:**

All inspireIds specified for a ProductionFacility within a single XML 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.

**C3.4 – ProductionInstallation inspireld uniqueness****Rationale:**

The success of the EU Registry is dependent on the correct use of Inspirelds. This needs to be unique in order to differentiate between different ProductionInstallations within a XML submission. A check is required in order to confirm uniqueness at this level of the geographical hierarchy.

**Criteria:**

All Inspirelds specified for a ProductionInstallation within a single XML submission will be compared to one another. No Inspirelds should be the same.

**Consequences of failing:**

Provide a blocking error, specifying all Inspirelds 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.

**C3.5 – ProductionInstallationPart inspireld uniqueness****Rationale:**

The success of the EU Registry is dependent on the correct use of inspirelds. This needs to be unique in order to differentiate between different ProductionInstallationParts within a XML submission. A check is required in order to confirm uniqueness at this level of the geographical hierarchy.

**Criteria:**

All inspirelds specified for a ProductionInstallationsParts within a single XML submission will be compared to one another. No inspirelds 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.

### **C3.6 – InspireId blank check**

**Rationale:**

The success of the EU Registry is dependent on the correct use of inspireIds. A check is required in order to confirm that every entity reported has an InspireId and namespace.

**Criteria:**

All reported ProductionSites, ProductionFacilities, ProductionInstallations and ProductionInstallationsParts must have both the localId and namespace attributes populated. Neither of these fields should be left blank.

**Consequences of failing:**

Provide a blocking error, specifying all entities 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.

## **4. Duplicate identification checks**

### **C4.1 – Identification of ProductionSite duplicates**

**Rationale:**

The introduction of duplicates can undermine the integrity of the look-up table.

**Criteria:**

Fuzzy matching will be performed on the location, and siteName attributes independently, for each ProductionSite identified within an XML submission. An algorithm to identify similarities will be utilised (e.g. Levenshtein distance), and a suitable threshold representing a non-acceptable degree of similarity determined.

**Consequences of failing:**

A warning error, specifying all ProductionSites that exceed the similarity threshold for both attributes. 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.

## C4.2 – Identification of ProductionFacility duplicates

**Rationale:**

The introduction of duplicates can undermine the integrity of the look-up table.

**Criteria:**

Fuzzy matching will be performed on the geometry, parentCompany, EPTRAnnexIActivity and facilityName attribute independently for each ProductionFacility within a submission. An algorithm to identify similarities will be utilised (e.g. Levenshtein distance), and a suitable threshold representing a non-acceptable degree of similarity determined.

**Consequences of failing:**

A warning error, specifying which facilities exceed the similarity threshold for all four attributes will be shown. 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.

### C4.3 – Identification of ProductionInstallation duplicates

**Rationale:**

The introduction of duplicates can undermine the integrity of the look-up table.

**Criteria:**

Fuzzy matching will be performed on the pointGeometry, IEDAnnexIActivity and installationName attributes independently for each ProductionInstallation within a submission. An algorithm to identify similarities will be utilised (e.g. Levenshtein distance), and a suitable threshold representing a non-acceptable degree of similarity determined.

**Consequences of failing:**

A warning error, specifying all installations that exceed the similarity threshold for all three attributes. 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.

### C4.4 – Identification of ProductionInstallationPart duplicates

**Rationale:**

The introduction of duplicates can undermine the integrity of the look-up table.

**Criteria:**

Fuzzy matching will be performed on the plantType, and installationPartName attributes for each ProductionInstallationPart within a submission. An algorithm to identify similarities will be utilised (e.g. Levenshtein distance), and a suitable threshold representing a non-acceptable degree of similarity determined.

**Consequences of failing:**

A warning error, specifying all ProductionInstallationParts that exceed the similarity threshold for both attributes. 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.

**C4.5 – Identification of ProductionSite duplicates within the database (RY2018 and later)****Rationale:**

The introduction of duplicates can undermine the integrity of the look-up table.

**Criteria:**

Fuzzy matching will be performed between the XML submission and the look-up table on the location and siteName attributes independently for each ProductionSite with different InspireIds. An appropriate matching algorithm will be chosen relative to the data considered in each respective attribute (e.g. Levenshtein distance for attributes which contain a character string). Such algorithms need to be geared towards identifying not only similarity but also potential typing errors. The average similarity across the attributes considered will be compared to an appropriate total similarity threshold, representing a non-acceptable degree of similarity. Such testing will exclude exact duplicates due to the pre-requisite of different InspireIds (e.g. the same facility being reported between years). The exact algorithms chosen and the thresholds will be evaluated for effectiveness in testing phases of the EU Registry.

**Consequences of failing:**

A warning error, specifying all ProductionSites that exceed the similarity threshold for both attributes. 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 look-up table.

**Needs of maintenance:**

The above look-up will need to be maintained.

**C4.6 – Identification of ProductionFacility duplicates within the database (RY2018 and later)****Rationale:**

The introduction of duplicates can undermine the integrity of the look-up table.

**Criteria:**

Fuzzy matching will be performed between the XML submission and the look-up table on the geometry, parentCompanyName, EPRTRAnnexIActivity and facilityName attributes independently for each ProductionFacility with different InspireIds. An appropriate matching algorithm will be chosen relative to the data considered in each respective attribute (e.g. Levenshtein distance for attributes which contain a character string). Such algorithms need to be geared towards identifying not only similarity but also potential typing errors. The average similarity across the attributes considered will be compared to an appropriate total similarity threshold, representing a non-acceptable degree of similarity. Such testing will exclude exact duplicates due to the pre-requisite of different InspireIds (e.g. the same facility being reported between years). The exact algorithms chosen and the thresholds will be evaluated for effectiveness in testing phases of the EU Registry.

**Consequences of failing:**

A warning error, specifying all facilities that exceed the determined similarity threshold. 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 look-up table.

**Needs of maintenance:**

The above look-up will need to be maintained.

## **C4.7 – Identification of ProductionInstallation duplicates within the database (RY2018 and later)**

**Rationale:**

The introduction of duplicates can undermine the integrity of the look-up table.

**Criteria:**

Fuzzy matching will be performed between the XML submission and the look-up table on the pointGeometry, IEDAnnexIActivity and installationName attributes independently for each ProductionInstallation with different InspireIds. An appropriate matching algorithm will be chosen relative to the data considered in each respective attribute (e.g. Levenshtein distance for attributes which contain a character string). Such algorithms need to be geared towards identifying not only similarity but also potential typing errors. The average similarity across the attributes considered will be compared to an appropriate total similarity threshold, representing a non-acceptable degree of similarity. Such testing will exclude exact duplicates due to the pre-requisite of different InspireIds (e.g. the same facility being reported between years). The exact algorithms chosen and the thresholds will be evaluated for effectiveness in testing phases of the EU Registry.

**Consequences of failing:**

A warning error, specifying all installations that exceed the similarity threshold for all three attributes. 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 look-up table.

**Needs of maintenance:**

The above look-up will need to be maintained.

## **C4.8 – Identification of ProductionInstallationPart duplicates within the database (RY2018 and later)**

**Rationale:**

The introduction of duplicates can undermine the integrity of the look-up table.

**Criteria:**

Fuzzy matching will be performed between the XML submission and look-up table, on the plantType, and installationPartName attributes independently for each ProductionInstallationPart with different InspireIds. An appropriate matching algorithm will be chosen relative to the data considered in each respective attribute (e.g. Levenshtein distance for attributes which contain a character string). Such algorithms need to be geared towards identifying not only similarity but also potential typing errors. The average similarity across the attributes considered will be compared to an appropriate total similarity threshold, representing a non-acceptable degree of similarity. Such testing will exclude exact duplicates due to the pre-requisite of different InspireIds (e.g. the same facility being reported between years). The exact algorithms chosen, and the thresholds will be evaluated for effectiveness in testing phases of the EU Registry.

**Consequences of failing:**

A warning error, specifying all installations parts that have exceeded the similarity thresholds for both attributes. 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 look-up table.

**Needs of maintenance:**

The above look-up will need to be maintained.

#### C4.9 – ProductionSite and Facility Continuity (RY2018 and later)

**Rationale:**

One of the desired intentions of the EU Registry is to, via consistent and accurate reporting, build a comprehensive look-up table, via which it is possible to detail the lifetime of a ProductionSite. A ProductionSite which is missing from a submission but has been reported in previous submissions prevents the EU Registry from reaching this objective.

**Criteria:**

The check will analyse existing reported inspirelds for ProductionFacilities reported within the submission, if reported in the previous year. These will be compared to the facility's associated site in the look-up table and the current associated site within the submission. The ProductionFacility should reference the same site as the previous reporting year, as indicated by the continuity of the same Inspireld for the associated site. All inspirelds present in the look-up table must also be found in the XML submission except where the corresponding inspirelds for all associated production facilities have the value 'decommissioned' for the attribute status in the previous reporting year.

**Consequences of failing:**

A warning error, specifying which ProductionFacilities are associated with ProductionSites that have changed in comparison with the previous year, will be shown. 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 look-up table.

**Needs of maintenance:**

The above look-up will need to be maintained.

#### C4.10 – Missing ProductionFacilities, previous submissions (RY2018 and later)

**Rationale:**

One of the desired intentions of the EU Registry is to, via consistent and accurate reporting, build a comprehensive look-up table, via which it is possible to detail the lifetime of a ProductionFacility. A ProductionFacility which is missing from a submission but has been reported in previous submissions prevents the EU Registry from reaching this objective.

**Criteria:**

The check will compare existing reported inspirelds contained in the look-up table with newly reported inspirelds. All inspirelds present in the look-up table should also be found in the XML submission except where the corresponding inspireld for the ProductionFacility has the value 'decommissioned' or 'not regulated' for the attribute status in the previous reporting year.



**Consequences of failing:**

A blocking error, specifying which ProductionFacilities are missing will be shown. 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 look-up table.

**Needs of maintenance:**

The above look-up will need to be maintained.

**C4.11 – Missing ProductionInstallations, previous submissions (RY2018 and later)****Rationale:**

One of the desired intentions of the EU Registry is to, via consistent and accurate reporting, build a comprehensive look-up table, via which it is possible to detail the lifetime of a ProductionInstallation. A ProductionInstallation which is missing from a submission but has been reported in previous submissions prevents the EU Registry from reaching this objective.

**Criteria:**

The check will compare existing reported inspirelds contained in the look-up table with newly reported inspirelds. All inspirelds present in the look-up table should also be found in the XML submission except where the ProductionInstallation was previously reported as 'decommissioned' or 'not regulated' in the previous reporting year.

**Consequences of failing:**

A blocking error, specifying which ProductionInstallations are missing will be shown. 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 look-up table.

**Needs of maintenance:**

The above look-up will need to be maintained.

**C4.12 – Missing ProductionInstallationsParts, previous submissions (RY2018 and later)****Rationale:**

One of the desired intentions of the EU Registry is to, via consistent and accurate reporting, build a comprehensive look-up table, via which it is possible to detail the lifetime of a ProductionInstallationPart. A ProductionInstallationPart which is missing from a submission but has been reported in previous submissions prevents the EU Registry from reaching this objective.

**Criteria:**

The check will compare existing reported inspireIds contained in the look-up table with newly reported inspireIds. All inspireIds present in the look-up table should also be found in the XML submission except where the ProductionInstallationPart was previously reported as 'decommissioned' in the previous reporting year.

**Consequences of failing:**

A blocking error, specifying which ProductionInstallationParts are missing will be shown. 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 look-up table.

**Needs of maintenance:**

The above look-up will need to be maintained.

## 5. Geographical and coordinate checks

### C5.1 – ProductionSite radius

**Rationale :**

The ProductionFacilities should be in proximity to the associated ProductionSite. A large distance between the spatial objects implies that the ProductionFacilities are not contained within the ProductionSite and hence should not be represented via the ProductionSite to ProductionFacility relationship of the EU Registry data model.

**Criteria:**

The coordinates supplied in the geometry attribute for each ProductionFacility must fall within a 10km radius of the coordinates of the associated ProductionSite, and ideally within a 5km radius.

**Consequences of failing:**

A warning error, specifying which ProductionFacilities have failed the 10km radius criteria will be shown. Alternatively, if the ProductionFacility falls within 10km radius of the associated ProductionSite,

but not a 5km radius, an info message will be displayed. 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

## C5.2 – ProductionFacility radius

**Rationale:**

The ProductionInstallations should be in proximity to the associated ProductionFacility. A large distance between the spatial objects implies that the ProductionInstallations are not contained within the ProductionFacility and hence should not be represented via the ProductionFacility to ProductionInstallation relationship of the EU Registry data model.

**Criteria:**

The coordinates supplied in the pointGeometry attribute for each ProductionInstallation must fall within a 5km radius, or ideally a 1km, of the coordinates of the associated ProductionFacility.

**Consequences of failing:**

A warning error, specifying which ProductionInstallations have failed the 5km radius criteria will be shown. An info message will also be shown for those ProductionInstallations which do not fail the 5km radius but are at a distance greater than the ideal 1km radius. 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.

## C5.3 – ProductionInstallation radius

**Rationale:**

The ProductionInstallationParts should be in proximity to the associated ProductionInstallation. A large distance between the spatial objects implies that the ProductionInstallationParts are not contained

within the ProductionInstallation and hence should not be represented via the ProductionInstallation to ProductionInstallationPart relationship of the EU Registry data model.

**Criteria:**

The coordinates supplied in the pointGeometry attribute for each ProductionInstallationPart must fall within a 3km radius of the coordinates of the associated ProductionInstallation, and ideally within a 0.5km radius.

**Consequences of failing:**

A warning error, specifying which ProductionInstallationParts have failed the 3km radius criteria will be shown. Alternatively, if the ProductionInstallationPart falls within a 3km radius of the associated ProductionInstallation but not a 0.5km radius, an info message will 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.

## C5.4 – Coordinates to country comparison

**Rationale:**

Coordinates specified in the respective attributes for all spatial objects should fall within the boundaries of the country reporting. If this is not the case, then the reporting country should not be reporting these spatial objects.

**Criteria:**

The coordinates contained in the respective attributes of all features types, will be compared to the country boundaries. Coordinates should fall within these boundaries. The country boundaries used will account for territorial waters, if applicable, and therefore not inhibit the reporting of off-shore ProductionSites (e.g., aquaculture facilities reporting under the E-PRTR Regulation).

**Consequences of failing:**

A blocking error specifying all spatial objects (ProductionSites, ProductionFacilities, ProductionInstallations and ProductionInstallationParts) which fail the above criteria will be shown. This will prevent the release of the envelope.

**Dependencies to look-up tables or external data:**

This check is dependent on the use of a country boundaries file. This will be stored in an appropriate location.

**Needs of maintenance:**

The above country boundaries file will need to be maintained in respect to territorial changes.

## C5.5 – Coordinate precision completeness

**Rationale:**

The EU registry data model contains several attributes in which the coordinates representing the approximate centre point of a spatial object are reported. These are required to be in format the ETRS89 (2D)-EPSG:4258 coordinate reference system, with a 10 m precision. Hence a check is required to ensure that, when coordinates are reported, each coordinate is to 4 decimal places, adhering to the 10 m precision required.

**Criteria:**

The location (ProductionSite), geometry (ProductionFacility), and pointGeometry (ProductionInstallation and ProductionInstallationPart) attributes will be interrogated. All coordinates reported should be consistent to 4 decimal places.

**Consequences of failing:**

A warning message will be displayed, specifying which spatial objects have failed the above criteria. 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.

## C5.6 – Coordinate continuity (RY2018 and later)

**Rationale:**

Coordinates are specified in specific attributes for all spatial objects considered by the data model. These coordinates should remain constant over time for the life of the spatial object. Refinement in accuracy however may occur, and a check is required to discern between genuine improvements in accuracy, and the allocation of incorrect coordinates.

**Criteria:**

The coordinates for all spatial objects within an XML submission will be compared to the spatial object of the same InspireId within a look-up table. Coordinates should remain constant over time, but it is recognised that coordinates may seldom change in relation to improved accuracy. The differences in coordinates between the XML submission and the look-up table will be evaluated based on the linear distance invoked by the change. A distance between the two coordinates of 10-30 m may be considered as coordinate refinement, however distances above the upper bound of this range but less than a distance of 100 m are considered as unlikely and represent significant change. A distance above 100 m is deemed as introducing nonsensical data into the look-up table.

**Consequences of failing:**

An info message will be shown for all distances between 10-30 m. A warning error, will be displayed if the distance derived is greater than 30 m, but less than a 100 m. A blocking error will be produced if the distance is greater than a 100 m.

All errors/messages produced will display the current coordinates of the spatial object in the look-up table alongside the imposed coordinates for the same spatial object within the submission.

If a blocking error is produced, 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 look-up table.

**Needs of maintenance:**

The above look-up will need to be maintained.

## **C5.7 – ProductionSite to ProductionFacility coordinate comparison**

**Rationale:**

Through the geographical hierarchy of the EU Registry, multiple ProductionFacilities can be associated with one hosting ProductionSite. In scenarios where this occurs, due to the requirement that each coordinate specified represents the centre point of the spatial object, all coordinates specified for both the ProductionSite and associated ProductionFacilities should be unique to one another.

**Criteria:**

When a ProductionSite hosts more than one ProductionFacility, coordinates for the hosting ProductionSite, supplied in the location attribute, will be queried against the coordinates supplied in the geometry attribute of all associated ProductionFacilities. A buffer will be applied to the coordinates for the ProductionSite and ProductionFacilities to translate them into a circle, with a diameter of 10 m and 60 m. No circles should overlap once each coordinate is translated at 10 m, and, ideally, no coordinates should overlap at the 60 m diameter.

**Consequences of failing:**

A warning message specifying the ProductionSite and the ProductionFacilities which fail the 10 m criteria will be shown. An info message will be shown for all ProductionSites and/or ProductionFacilities, which fail the 60 m criteria. 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.

## **C5.8 – ProductionInstallation to ProductionInstallationPart coordinate comparison**

**Rationale:**

Through the geographical hierarchy of the EU Registry, multiple ProductionInstallationParts can be associated with one ProductionInstallation. In scenarios where this occurs, due to the requirement that each coordinate specified represents the centre point of the spatial object, all coordinates specified for both the ProductionInstallation and associated installation parts should be unique to one another. A check is required to ensure uniqueness is adhered to.

**Criteria:**

Coordinates for the hosting ProductionInstallation, supplied in the pointGeometry attribute, will be queried against the coordinates supplied in the pointGeometry attribute of all associated ProductionInstallationParts when the number of ProductionInstallationParts hosted by a given ProductionInstallation is >1. No coordinates for the ProductionInstallationParts and ProductionInstallation should be identical.

**Consequences of failing:**

A warning message specifying the ProductionInstallation and ProductionInstallationParts which fail the above criteria will be shown. 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.

## 6. Activity checks

### C6.1 – EPRTRAnnexIActivity uniqueness

**Rationale:**

The ProductionFacility feature type contains an attribute which calls up the EPRTRAnnexIActivityType data type, in turn detailing both the mainActivity and otherActivity. Both the mainActivity and otherActivity should be unique to one another, and the inclusion of the same activity in both attributes leads to nonsensical data.

**Criteria:**

For each ProductionFacility the mainActivity and the otherActivity attributes will be compared when both attributes are populated. Each EPRTRAnnexIActivityValue specified should be unique.

**Consequences of failing:**

A blocking error specifying all production facilities which fail the above criteria will be shown. 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

### C6.2 – EPRTRAnnexIActivity continuity (RY2018 and later)

**Rationale:**

The activity relative to those listed in Annex I of the E-PRTR Regulation is required in the ProductionFacility feature type. The activity should remain constant over time for the lifetime of the ProductionFacility. A check is required to restrict the allocation of incorrect activities relative to what has previously been reported, which in turn can lead to inconsistencies once the XML submission becomes integrated into the look-up table.

**Criteria:**

The EPRTRAnnexIActivity 'mainActivity' attribute of for all ProductionFacilities within an XML submission will be compared to the ProductionFacility of the same InspireId within the look-up table. The EPRTRAnnexIActivityType 'mainActivity' should remain constant over time and seldom change, particularly between activity group (the activity group is denoted by the first digit of the EPRTRAnnexIActivityType Id).



**Consequences of failing:**

A warning error, specifying all facilities which have changed activity group, will be produced. Alternatively, an info message will be produced if a change in the `EPRTRAnnexIActivityType` occurs, but the change is within the same activity group (e.g. 1(a) to 1(c))

All errors/messages will display the current activity assigned to the `ProductionFacility` in the look-up table alongside the imposed activity for the same spatial object within the XML submission. Neither scenario will prevent the release of the envelope.

**Dependencies to look-up tables or external data:**

This check is dependent on data contained within the look-up table.

**Needs of maintenance:**

The above look-up will need to be maintained.

### C6.3 – IEDAnnexIActivity uniqueness

**Rationale:**

The `ProductionInstallation` feature type contains an attribute which calls up the `IEDAnnexIActivityType` data type, in turn detailing both the `mainActivity` and `otherActivity`. Both the `mainActivity` and `otherActivity` should be unique to one another, and the inclusion of the same activity in both attributes leads to nonsensical data.

**Criteria:**

For each `ProductionInstallation` the `mainActivity` and the `otherActivity` attributes will be compared when both attributes are populated. Each `IEDAnnexIActivityValue` should be unique.

**Consequences of failing:**

A blocking error specifying all production facilities which fail the above criteria will be shown. 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

## C6.4 – IEDAnnexIActivity continuity (RY2018 and later)

### Rationale:

The activity relative to those listed in Annex I of the IED is required in the ProductionInstallation feature type. The activity should remain constant over time for the lifetime of the ProductionInstallation. A check is required to restrict the allocation of incorrect activities relative to what has previously been reported, which in turn can lead to inconsistencies once the XML submission becomes integrated into the look-up table.

### Criteria:

The IEDAnnexIActivity attribute of for all ProductionInstallations within an XML submission will be compared to the ProductionInstallation of the same InspireId within the look-up table. The IEDAnnexIActivityType should remain constant over time, and seldom change, particularly between activity group (the activity group is denoted by the first digit of the IEDAnnexIActivityType Id).

### Consequences of failing:

A warning error, specifying all installations which have changed activity group, will be produced. Alternatively, an info message will be produced if a change in the IEDAnnexIActivityType occurs, but the change is within the same activity group (e.g. 2.1 to 2.2)

All errors/messages will display the current activity assigned to the installation in the look-up table alongside the imposed activity for the same spatial object within the submission. Neither scenario will prevent the release of the envelope.

### Dependencies to look-up tables or external data:

This check is dependent on data contained within the look-up table.

### Needs of maintenance:

The above look-up will need to be maintained.

## 7. Status checks

### C7.1 – Decommissioned StatusType comparison ProductionFacility and ProductionInstallation

#### Rationale:

The ProductionFacility feature type and the ProductionInstallation feature type, both contain a status attribute, detailing whether the respective spatial object is; 'disused', 'decommissioned' 'not regulated' or 'functional'. Due to the geographical hierarchy of the EU Registry data model, certain combinations between a ProductionFacility and associated installations are nonsensical.

**Criteria:**

If the status attribute for a ProductionFacility is 'decommissioned' the status for all associated ProductionInstallations should also be 'decommissioned'.

**Consequences of failing:**

A warning message specifying the ProductionFacilities and ProductionInstallations which fail the above criteria will be shown. 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.

## **C7.2 – Decommissioned StatusType comparison ProductionInstallations and ProductionInstallationParts**

**Rationale:**

The ProductionInstallation feature type and the ProductionInstallationPart feature type, both contain a status attribute, detailing whether the respective spatial object is; 'disused', 'decommissioned' 'not regulated' or 'functional'. Due to the geographical hierarchy of the EU Registry data model, certain combinations between a ProductionInstallation and associated ProductionInstallationParts are nonsensical.

**Criteria:**

If the status attribute for a ProductionInstallation is 'decommissioned' the status for all associated ProductionInstallationParts should also be 'decommissioned'.

**Consequences of failing:**

A warning message specifying the ProductionInstallations and ProductionInstallationParts which fail the above criteria will be shown. 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.

### C7.3 – Disused StatusType comparison ProductionFacility and ProductionInstallation

**Rationale:**

This check is based on the fact that the status between associated spatial objects must be logical, as certain statuses pose limitations towards the statuses of associated spatial objects lower down the geographical hierarchy of the EU Registry Data model.

**Criteria:**

The StatusType in the ProductionFacility feature type will be queried. If the StatusType is populated with the term 'disused', the StatusType for associated ProductionInstallation will be queried to ensure they also contains the term 'disused' or alternatively 'decommissioned'.

**Consequences of failing:**

A blocking error, specifying which spatial objects have failed the above criteria will be shown. This will prevent the release of the envelope, as the data supplied is nonsensical to reality.

**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.

### C7.4 – Disused StatusType comparison ProductionInstallations and ProductionInstallationParts

**Rationale:**

This check is based on the fact that the status between associated spatial objects must be logical, as certain statuses pose limitations towards the statuses of associated spatial objects lower down the geographical hierarchy of the EU Registry Data model.

**Criteria:**

The StatusType in the ProductionInstallation feature type will be queried. If the StatusType is populated with the term 'disused', the StatusType for the associated ProductionInstallationParts will be queried to ensure they also contains the term 'disused' or alternatively 'decommissioned'.

**Consequences of failing:**

A blocking error, specifying which spatial objects have failed the above criteria will be shown. This will prevent the release of the envelope, as the data supplied is nonsensical to reality.

**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.

**C7.5 – Decommissioned to functional plausibility (RY2018 and later)****Rationale:**

This check is based on the fact that the status between the same spatial objects between years must be logical, as certain statuses pose limitations towards the statuses in future reporting years.

**Criteria:**

In a single XML submission the StatusType of all spatial objects will be queried. If the StatusType is populated with the term 'functional', the StatusType for the same spatial object in the previous report year must not be 'decommissioned'.

**Consequences of failing:**

A blocking error, specifying which spatial objects have failed the above criteria will be shown. This will prevent the release of the envelope, as the data supplied is nonsensical to reality.

**Dependencies to look-up tables or external data:**

This check is dependent on data contained within the look-up table.

**Needs of maintenance:**

The above look-up will need to be maintained.

**8. Date checks****C8.1 - dateOfStartOperation comparison****Rationale:**

This check is based on the fact there is likely to be a chronological order to dateOf StartOperation between associated spatial objects, for example one would anticipate the operational start date of a ProductionFacility to occur before or be the same as the operational start date for associated ProductionInstallations. The same basis also applies to the ProductionInstallation to ProductionInstallationPart Relationship.

**Criteria:**

The dateOfStartOperation attribute within the ProductionFacility, ProductionInstallation and ProductionInstallationPart feature types will be queried, if supplied, against dateOfStartOperation for associated spatial objects to ensure:

1. The dateOfstartOperation for a ProductionFacility is the same or occurs before the dateOfstartOperation for associated Production Installations
2. The dateOfstartOperation for a ProductionInstallation is the same or occurs before the dateOfstartOperation for associated ProductionInstallationParts

All these comparisons are dependent on whether the attribute is supplied, as this is voidable in the ProductionFacility, ProductionInstallation and ProductionInstallationPart feature types.

**Consequences of failing:**

Provide a warning error, specifying which spatial objects have failed the above criteria. This will not prevent the release of the envelope, as there may be scenarios, caused by changes to ownership, for which the above criteria may not hold true.

**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.

**C8.2 - dateOfStartOperation LCP restriction****Rationale:**

In accordance with Article 72(3) of the IED, when an LCP is reported, the dateOfStartOperation is required and considered mandatory. As the ProductionInstallatonPart feature type is designed to cater for waste incinerators in addition to LCPs, the dateOfStartOperation is currently considered as voidable. A check is required to ensure that this attribute is populated when an LCP is reported, and thus adheres to the requirements set out in the IED.

**Criteria:**

The dateOfStartOperation attribute within the ProductionInstallationPart feature type will be queried against plantType for associated spatial objects. If the plantType is populated with the code 'LCP' the dateOfstartOperation must also be populated.

**Consequences of failing:**

Provide a blocking error, specifying which spatial object have failed 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.

**C8.3 – dateOfGranting plausibility****Rationale:**

The PermitDetails data type, called upon in the permit attribute of the ProductionInstallation feature type, provides the dates of two permit actions; granting and updates. The two actions are likely to occur in a chronological order, and hence the dates specified for ProductionInstallations submitted to the EU Registry should also reflect this.

**Criteria:**

For each ProductionInstallation reported, the dateOfGranting attribute will be queried and compared to the date specified in the dateOfLastUpdate attribute. The date specified for the granting action should precede the date for reconsideration.

**Consequences of failing:**

A warning message specifying all ProductionInstallations which fail the above criteria will be shown. 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.

**9. Permits and competent authority checks****C9.1 – competentAuthorityInspections to inspections comparison****Rationale:**

The ProductionInstallation feature type contains the attribute 'siteVisit' which in turn links to the 'SiteVisitType' data type where the number of inspections/site visit within that reporting year is specified. If this attribute contains a value  $\geq 1$  then it is plausible that the attribute detailing the competent authorities for inspections is also known or is easily attainable and therefore should be populated.

**Criteria:**

If the siteVisitNumber attribute populated within the SiteVisitType data type contains an integer  $\geq 1$ , then the competentAuthorityInspections attribute at the ProductionInstallation feature type should also be populated.

**Consequences of failing:**

A warning message specifying the installations which fail the above criteria will be shown. 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.

## C9.2 – competentAuthorityPermits and permit attribute comparison

**Rationale:**

The ProductionInstallation feature type contains an attribute in which the competent authority for permit actions is specified. The feature type also contains an attribute which details permit actions. Both attributes are logically connected, and the likelihood is that if permit actions are specified then information regarding the competent authority responsible for these permit actions is also easily available.

**Criteria:**

If the permit attribute is populated within any permit action (granting, reconsideration, or update), the competentAuthorityPermits attribute should also be populated.

**Consequences of failing:**

An info message specifying the ProductionInstallations which fail the above criteria will be shown. 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

**C9.3 – permitURL to dateOfGranting comparison (RY2018 and later)****Rationale:**

The ProductionInstallation feature type contains a permit attribute, which in turn links to the PermitDetails data type. Within this data type, the date the permit was granted is required and alongside a voidable attribute used to specify the web address of the permit, if hosted online. When the date of granting changes for an installation, the receipt of a new permit is implied. If, at this instance, the permitURL remains unchanged, this suggests the reporting country may have failed to update the web address in accordance to the new permit.

**Criteria:**

The dateOfGranting attribute will be compared against a look-up table detailing the previous dateOfGranting for all ProductionInstallations. If a change in this date is identified, the permitURL attributes will also be compared. The permitURL should be different to one another.

**Consequences of failing:**

An info message, specifying the installations which have failed the above criteria will be shown. 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 look-up table.

**Needs of maintenance:**

The above look-up will need to be maintained.

**C9.5 – enforcementAction to permitGranted comparison (RY2018 and later)****Rationale:**

The ProductionInstallation feature type contains a permit attribute, which in turn links to the PermitDetails data type. Within this data type, a Boolean is required stating whether a permit under Article 5 of the IED has been granted. Another voidable attribute details enforcement actions taken when no permit has been granted. In scenarios where the Boolean is set to 'false' (no permit has been granted), a check will enforce the population of the 'enforcementAction' attribute.

**Criteria:**

The 'permitGranted' Boolean will be evaluated for each installation. When this is populated with 'false' the 'enforcementAction' attribute must be populated with a description of what enforcement action has been taken.

**Consequences of failing:**

A warning message, specifying the installations which have failed the above criteria will be shown. This will not prevent the release of the envelope. This check will only be used from reporting year 2018 onwards.

**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.

## C9.6 – StricterPermitConditions (RY2018 and later)

**Rationale:**

The ProductionInstallation feature type contains a 'stricterPermitConditions' attribute, which in turn links to the 'StricterPermitConditionsType' data type. Within this data type, a Boolean is required stating whether the installation is subject to permit conditions that have been reconsidered in accordance with Article 21(3), and the permit sets stricter emission limit values than the lower value of the BAT-AEL range. If the installation is subject to stricter permit conditions the Boolean should be set to true, and under these circumstances the applicable BAT-AEL code list entry is required to be reported. This is reported in the 'BATAEL' attribute. This attribute has [0..1] multiplicity to ensure that, in circumstances where the Boolean is set to false, it is not required to be populated. The opposite can also occur, and in circumstances when the Boolean is set to true, a check is required to enforce the reporting of this attribute.

**Criteria:**

The 'stricterPermitConditionsIndicator' Boolean will be evaluated for each installation. When this is populated with 'true' the 'BATAEL' attribute, within the StricterPermitConditionsType data type, must be populated using the relevant code list.

**Consequences of failing:**

A blocking error, specifying the installations which have failed the above criteria will be shown. This will prevent the release of the envelope. This check will only be used from reporting year 2018 onwards.

**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. Derogation checks

### C10.1 – BATDerogationIndicator to permitGranted comparison

**Rationale:**

The ProductionInstallation feature type contains the BATDerogationType data type, in which a Boolean indicator is used to specify whether the ProductionInstallation is subject to Article 15(4) of the IED, which allows the competent authority to set more lenient emission limit values. As this attribute represents a formal change to the ProductionInstallation's operations by the competent authority, it is reasonable to assume this change will be enacted with a permit granted. A check is hence required to remove potential inconsistency in reporting an installation subject to article 15(4) but without a permit.

**Criteria:**

The BATDerogationIndicator attribute will be compared to the Boolean contained in the permitGranted attribute of the permitDetails data type. In the case of the BATDerogationIndicator Boolean being set to 'true' the Boolean for the permitGranted should also be set to 'true'.

**Consequences of failing:**

An info message, specifying the installations which have failed the above criteria will be shown. 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.

### C10.2 – BATDerogation (RY2018 and later)

**Rationale:**

The ProductionInstallation feature type contains the BATDerogationType data type, in which a Boolean indicator is used to specify whether the ProductionInstallation is subject to Article 15(4) of the IED, which allows the competent authority to set more lenient emission limit values. If the installation is subject to Article15(4), the Boolean should be set to true, and under these circumstances both the applicable BAT-

AEL and a URL making available to the public the specific reasons for the derogation, are also required to be reported. These are respectively reported in the 'BATAEL' and 'publicReasonURL' attributes. These attributes have [0..1] multiplicity to ensure that, in circumstances where the Boolean is set to false, these attributes are not required to be populated. The opposite can also occur, and in circumstances when the Boolean is set to true, a check is required to enforce the reporting of these attributes.

**Criteria:**

The 'BATDerogationIndicator' Boolean will be evaluated for each installation. When this is populated with 'true' the 'BATAEL' and 'publicReasonURL' attribute, within the BATDerogationType data type, must be populated using the code list for BAT-AELs, or a character string (for 'publicReasonURL').

**Consequences of failing:**

A blocking error, specifying the installations which have failed the above criteria will be shown. This will prevent the release of the envelope. This check will only be used from reporting year 2018 onwards.

**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.

### C10.3 – Limited lifetime derogation to reportingYear comparison

**Rationale:**

The ProductionInstallationPart feature type contains a 'derogations' attribute, which in turn links to a code list containing the articles under which derogations for LCPs are granted in the IED. One of the derogations, Article 33, is only applicable *'During the period from 1 January 2016 to 31 December 2023' (Article 31[1])*. A check is required to restrict the ability to report an LCP subject to this derogation after this period.

**Criteria:**

The derogations attribute will be queried and compared against the reportingYear attribute in the ReportData feature type. If a DerogationValue of 'Article 33' is determined, the reporting year should not be greater than 2023.

**Consequences of failing:**

A blocking error will be displayed, specifying which productionInstallationParts have failed the above criteria. The message will explicitly state that this derogation is no longer valid in respect to the reporting year. 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.

## C10.4 – District heating plants derogation to reportingYear comparison

**Rationale:**

The ProductionInstallationPart feature type contains a 'derogations' attribute, which in turn links to a code list containing the articles under which derogations for LCPs are granted in the IED. One of the derogations, Article 35, is only applicable '*Until 31 December 2022*' (Article 35[1]). A check is required to restrict the ability to report an LCP subject to this derogation after this period.

**Criteria:**

The derogations attribute will be queried and compared against the reportingYear attribute in the ReportData feature type. If a DerogationValue of 'Article 35' is determined, the reporting year should not be greater than 2022.

**Consequences of failing:**

A blocking error will be displayed, specifying which productionInstallationParts have failed the above criteria. The message will explicitly state that this derogation is no longer valid in respect to the reporting year. 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.

## C10.5 – Limited life time derogation continuity (RY2018 and later)

**Rationale:**

The ProductionInstallationPart feature type contains a 'derogations' attribute, which in turn links to a code list containing the articles under which derogations for LCPs are granted in the IED. One of the derogations, Article 33, is only applicable '*During the period from 1 January 2016 to 31 December 2023*' (Article 31[1]). Once an LCP has reported as subject to this derogation it is unlikely to change between submissions, a check is required to help minimise non-intentional changes in the derogation value.

**Criteria:**

The derogation attribute of for all ProductionInstallationParts within an XML submission will be compared to the ProductionInstallationPart of the same InspireId within the look-up table. If 'Article 33' is given within the look-up table, the attribute value should also be 'Article 33'. Once the period described above has passed, this check will be made obsolete.

**Consequences of failing:**

A warning error, specifying the ProductionInstallationParts that fail the above criteria will be shown.

**Dependencies to look-up tables or external data:**

This check is dependent on data contained within the look-up table.

**Needs of maintenance:**

The above look-up will need to be maintained.

## **C10.6 – District heat plant derogation continuity (RY2018 and later)**

**Rationale:**

The ProductionInstallationPart feature type contains a 'derogations' attribute, which in turn links to a code list containing the articles under which derogations for LCPs are granted in the IED. One of the derogations, Article 35, is only applicable 'Until 31 December 2022' (Article 35[1]). Once an LCP has reported as subject to this derogation it is unlikely to change between submissions, a check is required to help minimise non-intentional changes in the derogation value.

**Criteria:**

The derogation attribute for all ProductionInstallationParts within an XML submission will be compared to the ProductionInstallationPart of the same InspireId within the look-up table. If 'Article 35' is given within the look-up table, the attribute value should also be 'Article 35'. Once the period described above has passed, this check will be made obsolete.

**Consequences of failing:**

A warning error, specifying the ProductionInstallationParts that fail the above criteria will be shown.

**Dependencies to look-up tables or external data:**

This check is dependent on data contained within the look-up table.

**Needs of maintenance:**

The above look-up will need to be maintained.

## C10.7 – Transitional National Plan derogation continuity (RY2018 and later)

### Rationale:

The rationale for this check is based on Article 32(1) of the IED which states the ability for member states to draw up and implement transitional national plans 'During the period from 1 January 2016 to 30 June 2020'. The ProductionInstallationPart feature type contains a derogation attribute in which member states can state the installation parts subject to transitional national plans. Due to the manner in which they are implemented, the contents of the attribute should not change over time, until the end of the relevant period for this derogation.

### Criteria:

The derogation attribute of for all ProductionInstallationParts within an XML submission will be compared to the ProductionInstallationPart of the same InspireId within the look-up table. If 'Article 32' is given within the look-up table, the attribute value should also be 'Article 32'. This check will be made obsolete once the period described above has passed.

### Consequences of failing:

A warning error, specifying the ProductionInstallationParts that fail the above criteria will be shown.

### Dependencies to look-up tables or external data:

This check is dependent on data contained within the look-up table.

### Needs of maintenance:

The above look-up will need to be maintained.

## 11. LCP and Waste incinerator checks

### C11.1 – otherRelevantChapters to plantType comparison

#### Rationale:

The ProductionInstallation feature type contains an attribute in which other chapters of the IED, is specified as applicable to the installation. Chapters III or IV, if selected, refer to 'special provisions for combustion plants' and 'special provisions for waste incineration plants and waste co-incineration plants' respectively, and hence should match the plantType specified in all associated installation plants. Discontinuity between this attribute and the associated ProductionInstallationParts reported leads to nonsensical data.

#### Criteria:

1. If the otherRelevantChapters attribute refers to 'Chapter III' ensure that at least one associated installation part has the PlantTypeValue 'LCP'
2. If the otherRelevantChapters attribute refers to 'Chapter IV' ensure that at least one associated installation part has the PlantTypeValue 'WI' or 'co-WI'

**Consequences of failing:**

A warning message specifying the ProductionInstallations which fail the above criteria will be shown. 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.

## C11.2 – LCP plantType

**Rationale:**

The ProductionInstallationPart feature type contains attributes specific to waste incinerators/co-incinerators or LCPs. If the wrong attributes are populated in respect to the nature of the ProductionInstallationParts being reported, this can lead to nonsensical data.

**Criteria:**

If the PlantTypeValue is 'LCP', representing a large combustion plant, the totalRatedThermalInput attribute should be populated, and the nominalCapacity, specificConditions, HeatReleaseHazardousWaste, untreatedMunicipalWaste, publicDisclosure and publicDisclosureURL attributes should not be populated.

**Consequences of failing:**

A warning message specifying the ProductionInstallationParts which fail the above criteria will be shown.

**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.



### C11.3 – totalRatedThermalInput plausibility

**Rationale:**

The ProductionInstallationPart feature type contains the totalRatedThermalInput attribute, detailing the thermal capacity of a LCP. If the value specified within this attribute is below 50 MW, then the spatial object considered is no longer subject to the definition of an LCP inferred within the IED. Equally, thermal capacities above a threshold of 8500 MW, are not likely to occur in modern combustion plant design, and hence any value above this threshold is likely to be an error.

**Criteria:**

The totalRatedThermalInput attribute should not contain an integer less than 50 or an integer greater than 8500.

**Consequences of failing:**

A warning message specifying the ProductionInstallationParts which fail the above criteria will be shown. 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.

### C11.4 – WI plantType

**Rationale:**

The ProductionInstallationPart feature type contains attributes specific to waste incinerators/co-incinerators or large combustion plants. If the wrong attributes are populated in respect to the nature of the production installation part being reported, this can lead to nonsensical data.

**Criteria:**

If the PlantTypeValue is 'WI' or 'co-WI', representing a waste incinerator/co-incinerator, the nominalCapacity should be populated, and the totalRatedThermalInput and derogations attributes should not be populated. From the 2018 reporting year the attributes HeatReleaseHazardousWaste, untreatedMunicipalWaste, publicDisclosure and publicDisclosureURL attributes should also be populated.

**Consequences of failing:**

A warning message specifying the installation parts which fail the above criteria.

**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.

**C11.5 – nominalCapacity plausibility****Rationale:**

The ProductionInstallationPart feature type contains the attribute 'nominalCapacity', calling up the CapacityWasteIncinerationType data type. This in turn contains attributes in which the nominal capacity of the waste incinerator/co-incinerator is specified, in terms of total waste, non-hazardous waste and hazardous waste, expressed as an hourly rate in tonnes. However, if the total waste is specified as zero this implies an incinerator with no capacity, leading to nonsensical data. Equally, the total waste is not likely to exceed a value upwards of 60 tonnes per hour and hence values above this threshold may be due to unit errors. In addition, the hazardous or non-hazardous component should be equal or less than the total waste capacity stated. A check is hence required to remove the possibility of reporting nonsensical data.

**Criteria:**

For each ProductionInstallationPart, the value for specified in the totalNominalCapacityAnyWasteType attribute will be evaluated. The product should be greater than 0 but less than a maximum threshold of 60, or ideally below a capacity of 30. The PermittedCapacityHazardous and PermittedCapacityNonHazardous attributes, if supplied, will also be evaluated and compared to the value supplied in the totalNominalCapacityAnyWasteType attribute. The permittedCapacityHazardous or PermittedCapacityNonHazardous attribute should be less than or equal to the totalNominalCapacityAnyWasteType.

**Consequences of failing:**

A Warning message, specifying all ProductionInstallationParts, which contain a value supplied in either the PermittedCapacityHazardous or PermittedCapacityNonHazardous attribute which is greater than the TotalNominalCapacityAnyWasteType. A warning message will be produced for all ProductionInstallationParts where the TotalNominalCapacityAnyWasteType which exceed the maximum threshold of 60. An info message will be produced if the value specified falls in a range of 30 – 60.

**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.

## 12. Confidentiality checks

### C12.1 – Confidentiality restriction

**Rationale:**

The AddressDetails data type contains the confidentialityReason attribute in which a reason is supplied in accordance with the Public Access to Environmental Information Directive (2003/4/EC). This is intended so that the address of a ProductionFacility can be protected. This data type however also occurs within the CompetentAuthority data type, where the address of the competent authority for permits, inspections or E-PRTR is stated. This data cannot be treated confidential and should not be subject to any confidentiality claim via the supply of a reason. A check is required to enforce this.

**Criteria:**

In a single XML submission, where the CompetentAuthority data type occurs, the confidentialityReason attribute within the respective connected AddressDetails data type should be left unpopulated.

**Consequences of failing:**

A blocking error, specifying the spatial objects which fail the above criteria will be shown. 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.

### C12.2 – 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 EU Registry, 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 to elaborate further on cases where confidentiality is reasonable. If a country over-uses this designation, the case will be sent to DG ENV for judgement and a dialogue with the country will be initiated to discuss compliance with Directive 2003/4/EC. However, EEA will not reject data on the grounds of misuse of confidentiality unless instructed otherwise by DG ENV. The data model for the EU Registry contains multiple attributes within data types used across all feature types, where claims for confidentiality relative to Directive 2003/4/EC 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 submission, the total number of data types that contain the confidentialityReason attribute shall not respectively exceed 10% and ideally be less than 5%. For the FeatureName data type, these thresholds will apply at each level of the geographical hierarchy where the data type is used and hence be specific to the type of feature being reported (e.g. ProductionSite).

**Consequences of failing:**

A warning error, specifying the extent to which the 10% threshold was exceeded will be shown. Alternatively, an info message will be shown if the 5% threshold is exceeded, but the value produced is less than 10%. A list of all spatial objects claiming confidentiality 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.

## 13. Other identifiers and other miscellaneous checks

### C13.1 – ETSIdentifier validity

**Rationale:**

The ProductionInstallation feature type contains a voidable attribute which details the ID used in the EU Emissions trading system (ETS). All IDs specified within these attributes require a check to ensure that they consist of an ID recognised by the ETS. These IDs will need to be provided in a uniform format by reporters for QA/QC purposes (see also C13.11 for format compliance checking).

**Criteria:**

For each ProductionInstallation, the ETSIdentifier attribute, if supplied, will be queried and compared to a look-up table of all valid ETS IDs. Every ETSIdentifier given in a submission should be present in the look-up table. The identifier must be provided in a specific format (see C13.11).

**Consequences of failing:**

A warning message specifying all ProductionInstallations which fail the above criteria will be shown. 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 look-up table.

The ETS data are owned by the European Commission, DG CLIMA. EEA obtains an extract every year. A look up table will be a subset of that extract containing the IDs that exist in the ETS database.

**Needs of maintenance:**

The look-up table has to be updated every April 15<sup>th</sup> to ensure newly-added IDs during the previous reporting year are included in the look-up table.

**C13.2 – eSPIRSIdentifier validity****Rationale:**

The ProductionInstallation feature type contains a voidable attribute which details the ID used in the Seveso Plant Information Retrieval System (eSPIRS). All IDs specified within these attribute require check to ensure they consists of an ID recognised by the Seveso system.

**Criteria:**

For each ProductionInstallation, the eSPIRSId, if supplied, will be queried and compared to a look-up table of all valid Sevaso IDs. Every eSPIRSId given in a submission should also be present in the look-up table.

**Consequences of failing:**

A warning message specifying all production installations which fail the above criteria will be shown. 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 look-up table.

The eSPIRS data are owned by the European Commission, DG JRC. EEA obtains an extract every year. A look up table will be a subset of that extract containing the IDs that exist in the ETS database.

**Needs of maintenance:**

The look-up table has to be updated every April 15<sup>th</sup> to ensure newly-added IDs during the previous reporting year are included in the look-up table.

**C13.3 – ProductionFacility facilityName to parentCompanyName comparison****Rationale:**

The ProductionFacility feature type contains the facilityName attribute, in which the name of the facility is specified in the FeatureName data type. The feature type also contains the parentCompany attribute, in which the name of the parent company is specified in the ParentCompanyDetails data type. The name attribute for the ProductionFacility should be distinct to the name of the parent company, in order to obtain the most detail via the two attributes working in conjunction (e.g. parent company name: 'Metal Production Limited' facility name: 'Metal Production Limited's Northern processing facility').

**Criteria:**

For each facility reported, the nameOfFeature attribute in the FeatureName data type will be compared to the parentCompanyName attribute in the ParentCompanyDetails data type. The character string populating each attribute should be different from one another.

**Consequences of failing:**

An info message will be displayed, specifying which production facilities fail the above criteria. The info message will recommend the member state submitting should consider refining the names supplied. 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.

## **C13.4 – nameOfFeature continuity (RY2018 and later)**

**Rationale:**

The nameOfFeature attribute is required in specific attributes for all spatial objects considered by the data model. The name supplied within this attribute should remain constant over time for the life of the spatial object. A check is required to restrict the allocation of incorrect names, which in turn can lead to inconsistencies once the XML submission becomes integrated into the look-up table.

**Criteria:**

The nameOfFeature attribute within the FeatureName data type of all spatial objects within an XML submission will be compared to the name of the spatial object of the same inspireId within the look-up table. Names should remain constant over time.

**Consequences of failing:**

An info message, specifying all spatial objects which have failed the above criteria will be shown. This message will display the current name of the spatial object in the look-up table alongside the imposed name for the same spatial object within the submission. 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 a look-up table.

**Needs of maintenance:**

The above look-up will need to be maintained.

**C13.5 – reportingYear plausibility****Rationale:**

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

**Criteria:**

The XML 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 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

**C13.6 – electronicMailAddress format****Rationale:**

The CompetentAuthority data type, called upon in the both the ProductionInstallation feature type and ProductionFacility feature type, contains an attribute in which the email address is specified. To be of use to the EU Registry, the email address specified should follow a common format, in turn implying its validity.

**Criteria:**

The email address specified in the `electronicMailAddress` should contain at least one dot (.) and an at symbol (e.g. `emailaddress@test.com`).

**Consequences of failing:**

An info message specifying all facilities and /or installations which fail the above criteria will be shown. 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.

## C13.7 – Lack of facility address

**Rationale:**

The data model for the EU Registry permits facilities to be reported without addresses since this is the case for fish farms and other offshore facilities. A certain number of facilities without addresses are anticipated, however a check is required to ensure that this attribute is not overused, posing limitations to the use of the data reported.

**Criteria:**

In a single XML submission, the number of `ProductionFacilities` without the address attribute populated shall not exceed 0.7%, and ideally be less than 0.1%.

**Consequences of failing:**

A warning error, specifying the extent to which the 0.7% threshold was exceeded, will be shown. Alternatively, an info message will be produced if the value produced exceeds a threshold of 0.1% but is less than 0.7%. A list of all `ProductionFacilities` submitted without the address attribute populated will 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.



## C13.8 – DateOfStartOfOperation future year

### Rationale:

The data model for the EU Registry contains multiple attributes which refer to the date of the start of operation for the entity. A check is required to ensure this date does not reference a year beyond the year reported in the 'reportingYear' attribute.

### Criteria:

For each facility, installation or installation part reported, the 'dateOfStartOfOperation' attribute, if supplied, will be queried. A date referring to a year which is a future year relative to the year specified in the 'reportingYear' attribute will not be accepted.

### Consequences of failing:

A blocking error, specifying the entities which are subject to the above criteria. This will 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.

### Needs of maintenance:

No current needs for maintenance have been identified.

## C13.9 – FeatureName blank check

### Rationale:

Each spatial object must be provided with a name, independent of the inspireId. The nameOfFeature attribute is therefore required in specific attributes for all spatial objects considered by the data model. A check is required to ensure this attribute is completed.

### Criteria:

The SiteName, FacilityName, InstallationName and InstallationPartName attributes will be checked for every entity reported. These fields must be populated for every entity, blanks will not be accepted.

### Consequences of failing:

A blocking error, specifying the entities which fail to meet the above criteria. This will 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.

**Needs of maintenance:**

No current needs for maintenance have been identified.

**C13.10 – Non-mandatory blank or trivial attribute check****Rationale:**

Ideally, a GML submission should not contain empty fields or trivial entries (e.g. a space, comma, tab, full stop etc.). For example, `<EUReg:derogations xlink:href="" />` should be excluded from the GML by the reporter. Reporters should generate their GML files to contain only fields where data is being reported. Therefore, a check is required to flag blank fields that are non-mandatory.

**Criteria:**

All attributes will be checked for blank entries or trivial characters only (e.g. a space, comma, tab, full stop etc.). Empty or meaningless fields will be flagged.

**Consequences of failing:**

A warning error, specifying the attributes 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.

**C13.11 – ETSIdentifier format check****Rationale:**

The Identifier should be reported in a specific format, starting with the two-letter ISO country code followed by 15 digits. The last digits should represent the EUTL code (also known as the installation identifier) and the remainder of the digits should be zeros. Therefore a check is required to ensure the format required is adhered to.

**Criteria:**

The ETSId attribute will be checked for the correct format where reported. ETSIdentifiers reported with an incorrect format will be flagged.

**Consequences of failing:**

A warning error, specifying the ETSIdentifiers reported with an incorrect format. 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.

**C13.12 – 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.

# 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.

**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

**Geographical Hierarchy:** The term used to describe the structure of the EU Registry data model, with ProductionSite representing the biggest spatial object, followed by ProductionFacility, ProductionInstallation and ProductionInstallationPart.

**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:** Represents something installed, such as machinery, an apparatus, a device, a system, or a piece of equipment placed in position or connected for use.

**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 data. It defines the elements, attributes and data types of the XML data.

**Semantic data:** Semantic data includes information that adds basic meaning to the data and the relationships between them. The data is organised in such a way that it can be interpreted in a meaningful manner without human intervention.

**Voidable:** In data modelling, voidable means that whenever information does not exist then it does not have to be provided.

**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 enquire 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)