



# SEVESO REPORTING: eMARS Data Model

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Seveso Community of Practice  
Webinar, Copenhagen  
17 December 2024



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**We want  
to hear  
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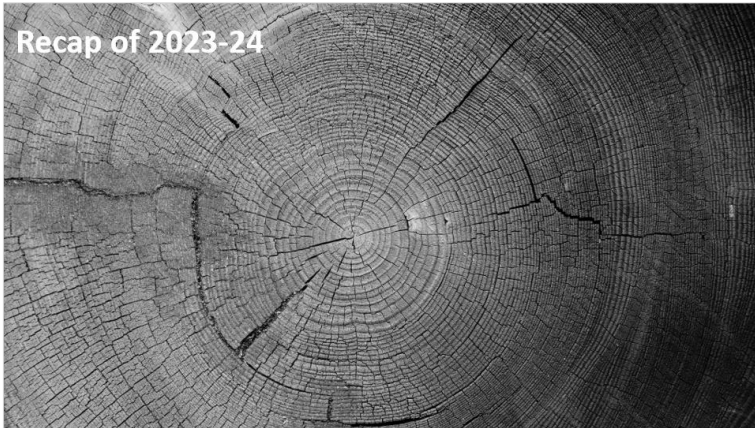
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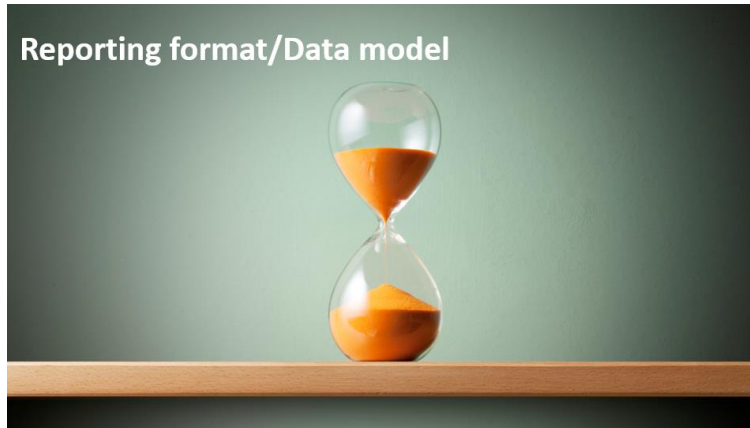


# Outline

Recap of 2023-24



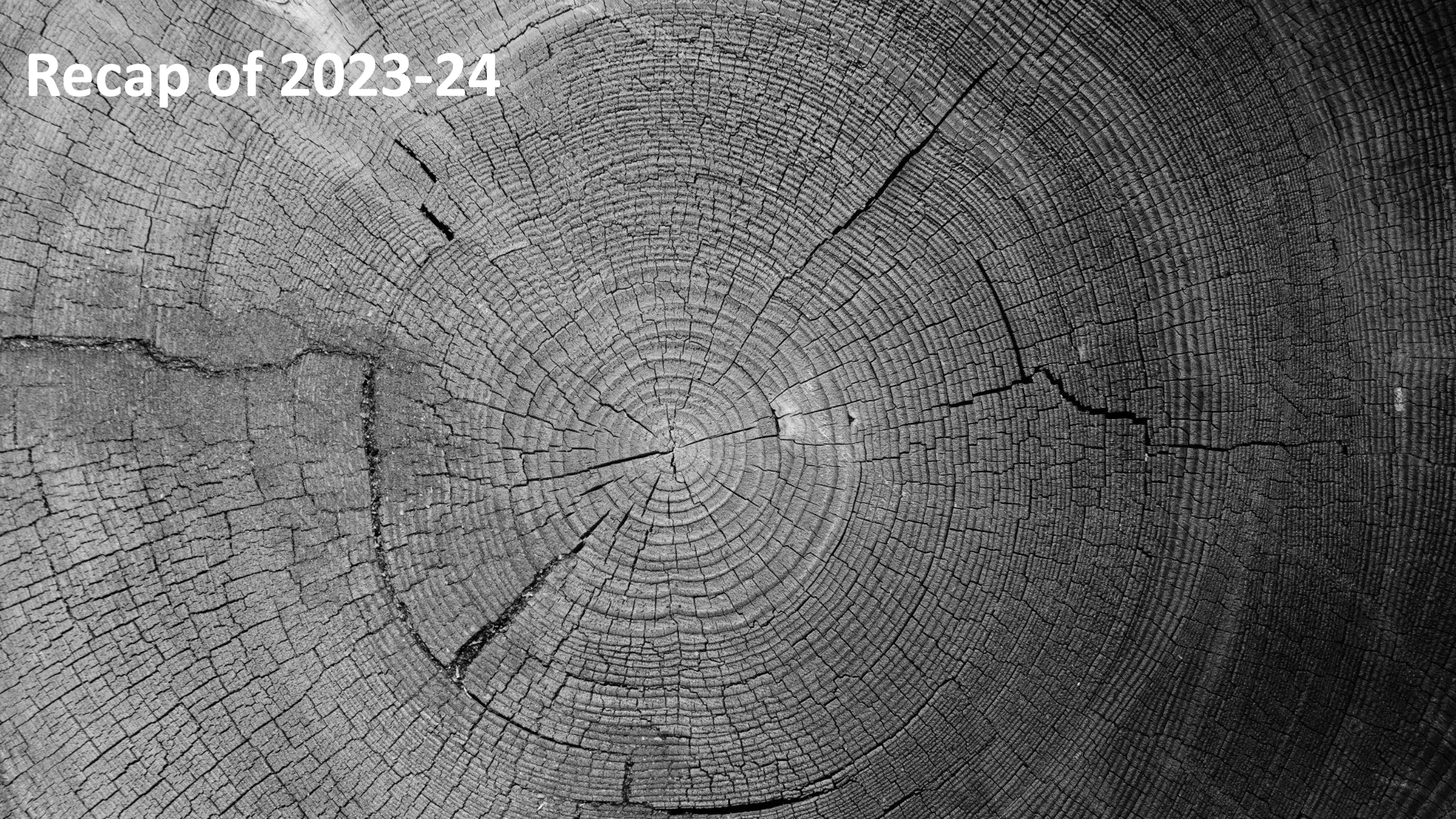
Reporting format/Data model



Next steps







Recap of 2023-24



# Developments 2023-24

- › Analyse requirements
- › Analyse current systems
- › Key focus to date
  - › Reporting platform
  - › Database
  - › Documentation



## EEA eReporting

- › New functionality
- › Setting up specific format

The screenshot displays the EEA eReporting website. At the top, there is a header with the European Union flag and the text "An official website of the European Union" and "How do you know?". Below this is a dark blue banner with the "Reportnet" logo and a "Login" button. The main content area features a large graphic of a network with yellow and green lines. Text on the left states: "The next generation for e-Reporting environmental and climate data". It explains that Reportnet 3 is the new platform for reporting environmental and climate data to the European Environment Agency (EEA), embracing the strategic goals of the European Commission's Green Deal and Digital Strategy. It also mentions that Reportnet 2 will remain operational until all data flows are migrated and will then become an archive. A link is provided for Reportnet 2: <http://cdr.eionet.europa.eu/>. On the right, there is a "Need any help?" section with contact information: "Please contact us at [helpdesk@reportnet.europa.eu](mailto:helpdesk@reportnet.europa.eu)". Below this is a "Supporting documents:" section with a list of links: "Login", "Reporter", "Requester", "Webforms", and "API". At the bottom, there is a "Dataflow status" section with two buttons: "View by obligation dataflow status and download reported data" and "View by country dataflow status and download reported data".

An official website of the European Union How do you know? ▾

European Union

Reportnet Login

**The next generation for e-Reporting environmental and climate data**

Reportnet 3 is the new e-Reporting platform for reporting environmental and climate data to the European Environment Agency (EEA). The platform embraces the strategic goals of the European Commission's Green Deal and Digital Strategy and hosts reporting tasks on behalf of EEA and the Commission.

The transition of reporting obligations from Reportnet 2 to Reportnet 3 will take a number of years. Therefore, Reportnet 2 will remain operational until all data flows are migrated and will then become an archive.

Reportnet 2 can be accessed here: <http://cdr.eionet.europa.eu/>

**Need any help?**  
Please contact us at [helpdesk@reportnet.europa.eu](mailto:helpdesk@reportnet.europa.eu)

**Supporting documents:**

- Login
- Reporter
- Requester
- Webforms
- API

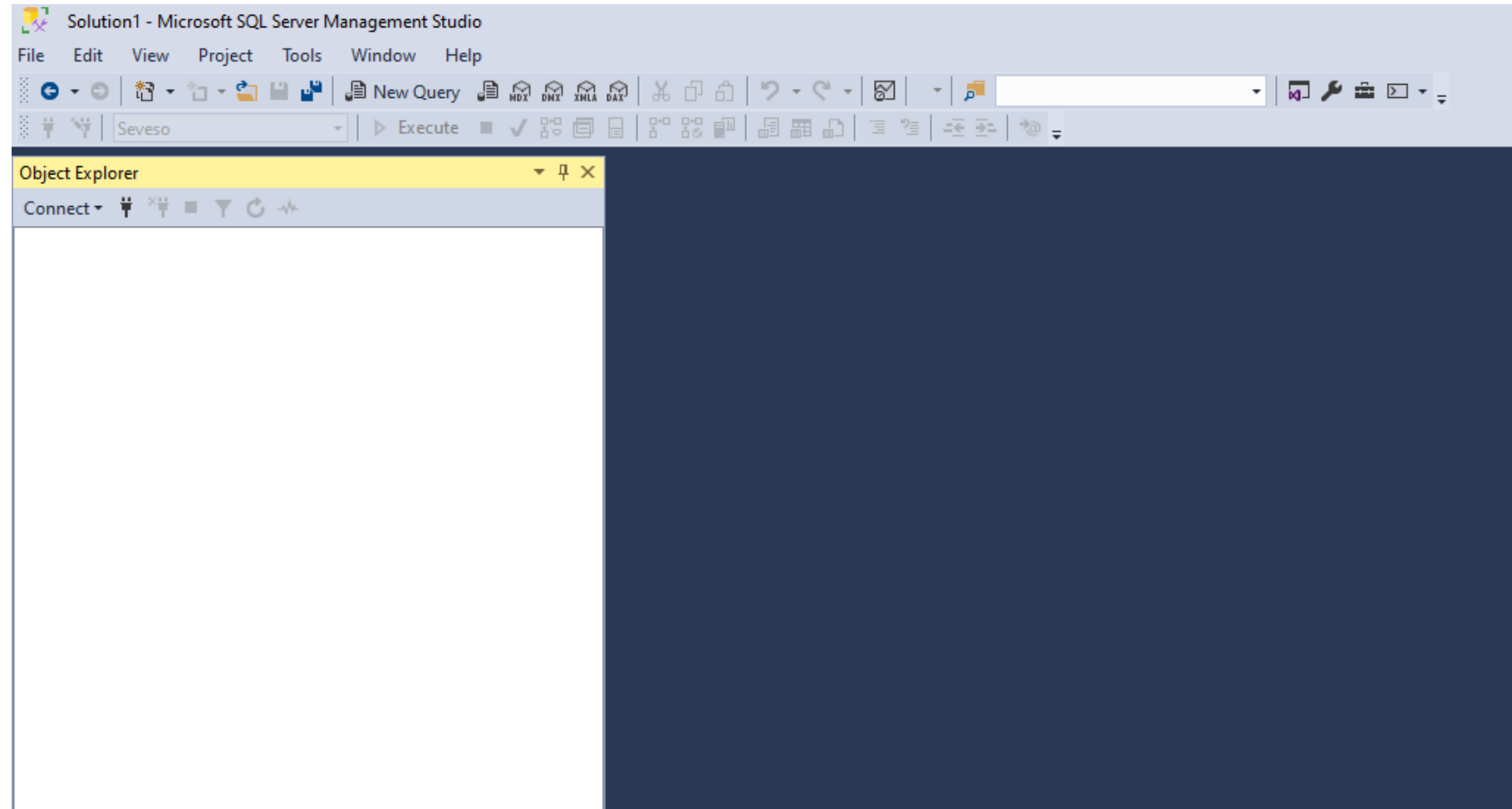
**Dataflow status**

**View by obligation dataflow status and download reported data**

**View by country dataflow status and download reported data**

# Database development

- › SQL server
- › Data transfer test  
(JRC to EEA)

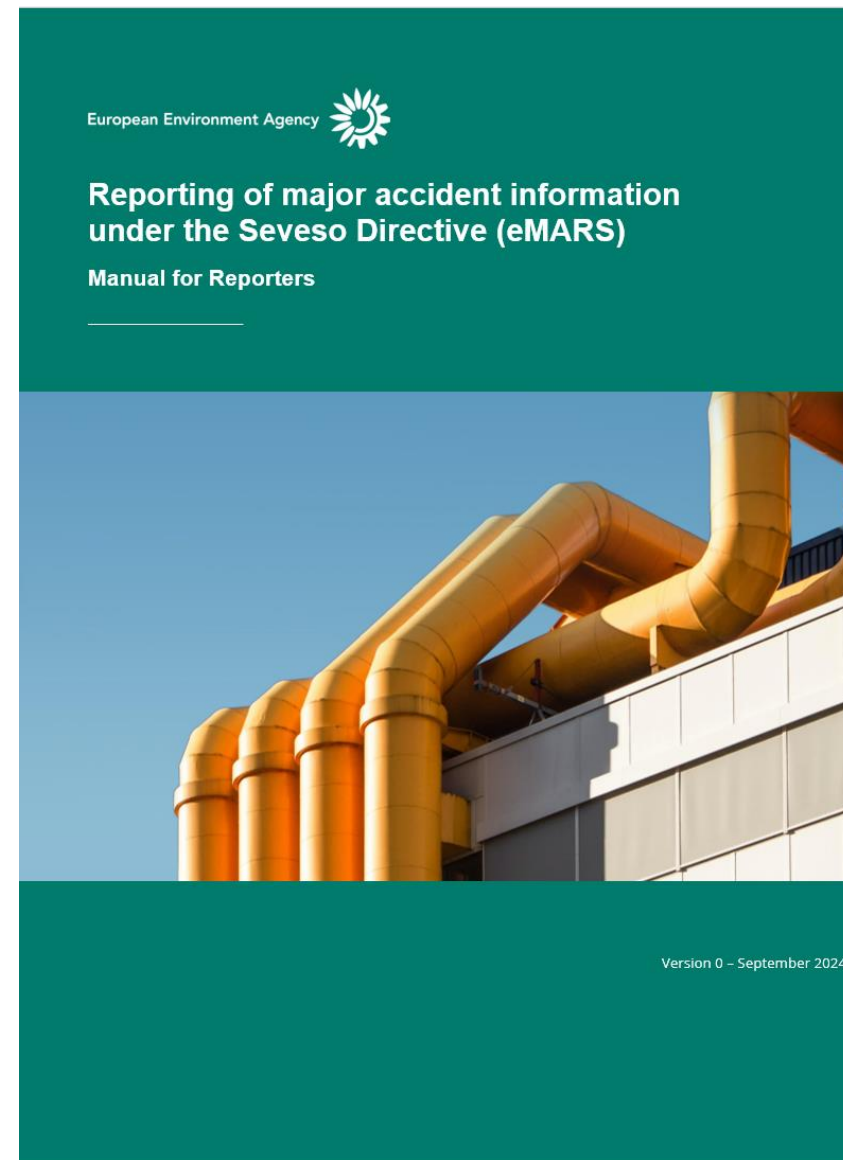


# Documentation

- › Data reporting manuals for users
  - › Background
  - › Data model and historical data
  - › How to report
- › Regular updates

Drafted

Pending

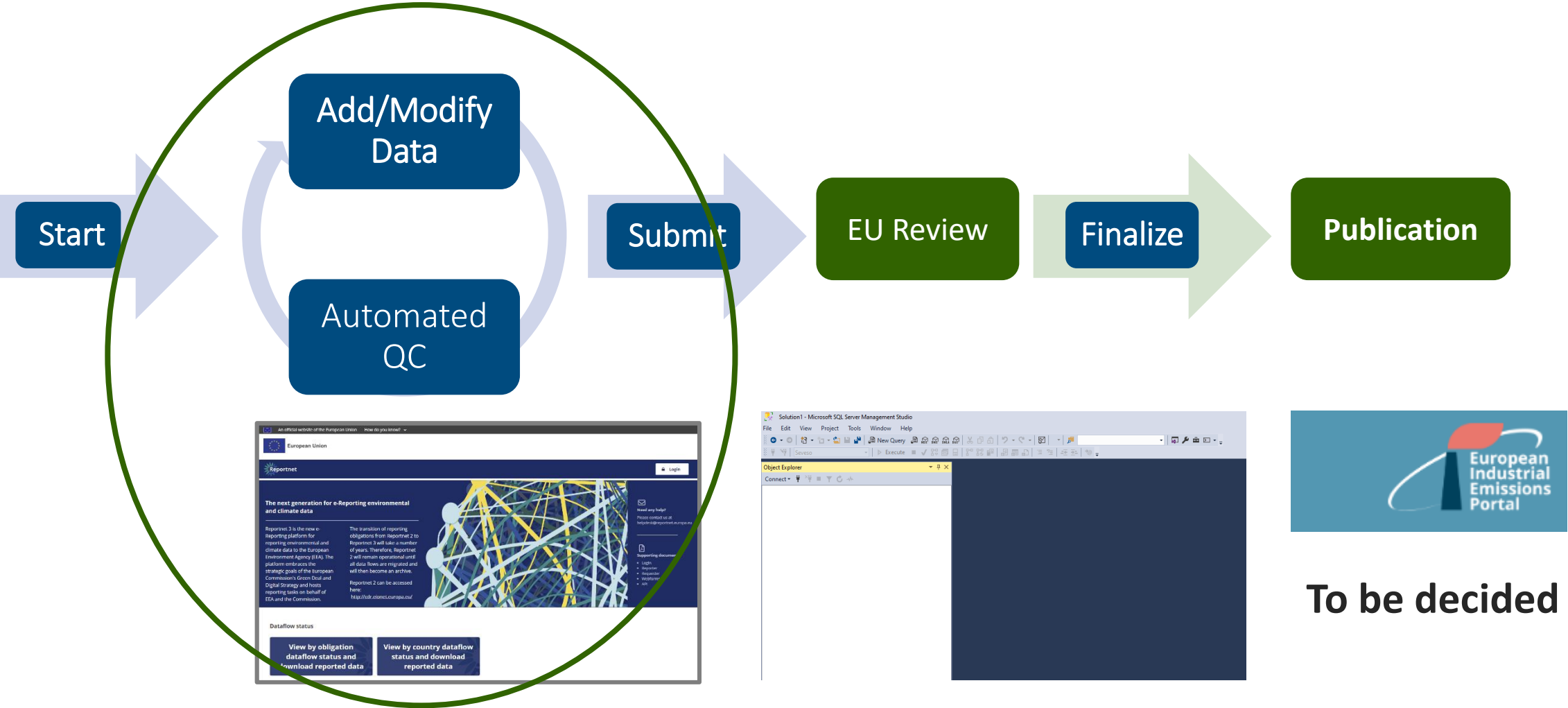


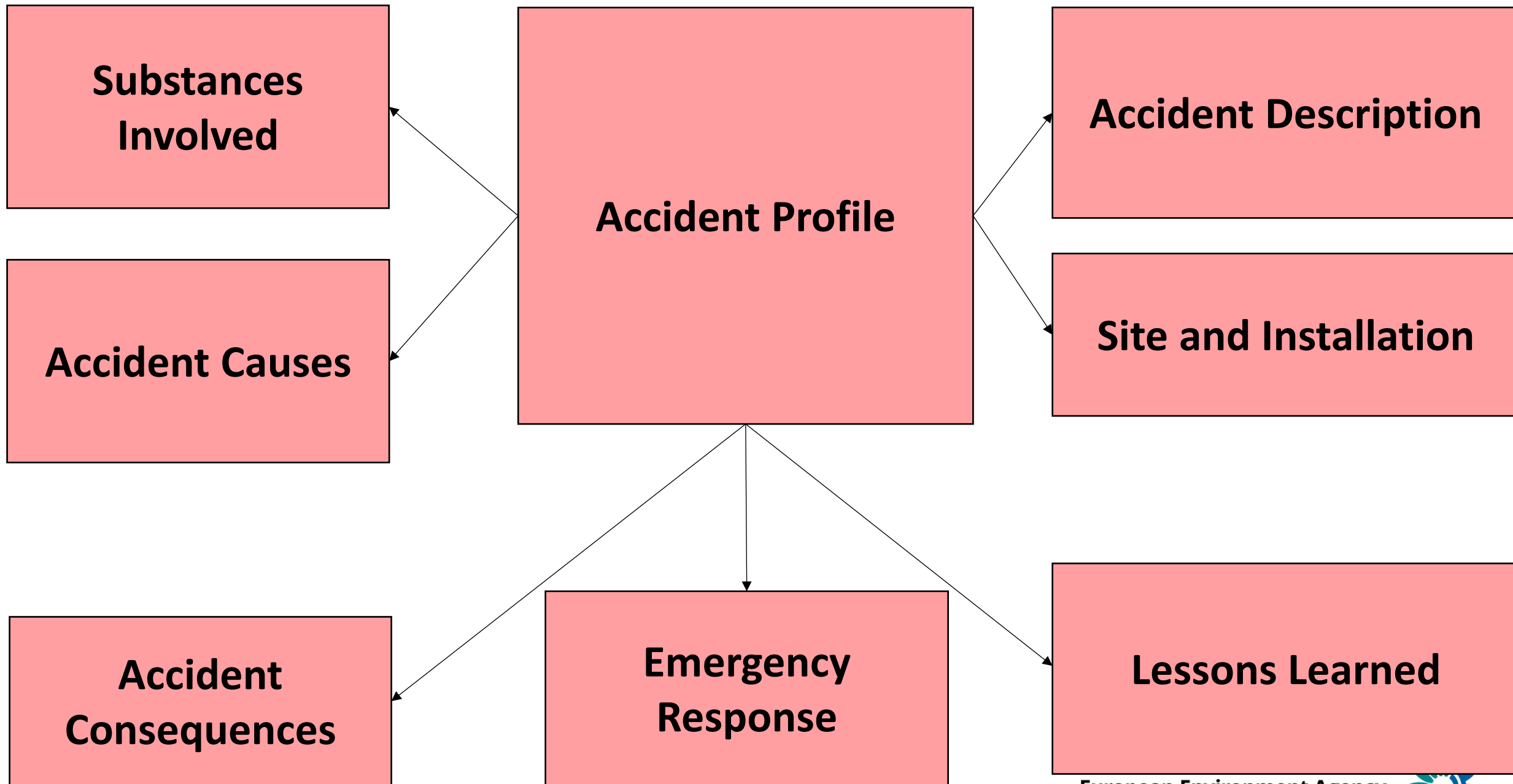


# Reporting format/Data model



# Accident reporting workflow







# User interface: example form for a single accident

## Current:

Accident Profile	Accident Description	Site and Installation	Substances Involved	Causes	Consequences	Emergency Response	Lessons Learned	Attachment Section
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## Reportnet:

⌵ Accident Profile	⌵ Accident Description	⌵ Site and Installation	⌵ Substances Involved	⌵ Causes	⌵ Consequences	⌵ Emergency Response	⌵ Lessons Learned	⌵ Attachment Section
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## For each section

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- › Content requirement
- › Data structure and reporting form implementation
- › Proposed changes – your reactions now or in writing

# Accident profile





# Accident profile - Requirements

- › Basic information about the accident
- › Information most useful for top level filtering of accidents

Attribute	Item number in the Commission Decision (Part I)
accidentID	Metadata
accidentCode	Metadata
accidentTitle	1.2
startDate	1.1
endDate	1.1
reportingAuthority	1.3, 1.4
authorityName	1.3
authorityAddress	1.3
authorityCity	1.3
reporterName	1.4
reporterTel	1.4
reporterEmail	1.4
accidentType	1.5
reportedUnder	1.6
sevesoStatus	1.7
industrialActivity	1.8
plantInformation	1.9
plantName	1.9
plantAddress	1.9
reportingReasons	1.10
affectedNeighbours	1.11

# Accident profile – Structure and format

Accident Title \*

0

Event type \*

Major accident

Reported under \*

Seveso II

Seveso status \*

lower-tier

Reporting Reason(s) \*

Interesting for lessons learned; Substances involved: greater than 5% of quantity in Column 3 of Annex I

Plant name \*

0

Plant address \*

0

Industry type \*

Affected neighbour countries

# Accident profile – proposed changes and points to observe

- › Accident ID and Accident Code – we propose to create only a single accident ID for each accident
- › Currently ID used in public search, Accident code in admin search
- › Reporting authority – should it be at accident level or separately?

**Contacts**

***Reported by***

Name \*

Address \*

City \*

Country

**Antarctica**

***Reporting contact***

Name \*

Phone \*

Fax

Email \*



# Accident description

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# Accident description - Requirements

- › Description of the accidents
- › Details if there have been specific events: fire, release, explosion or transport related event

Attribute	Item number in the Commission Decision (Part II)
accidentDescription	1.1
accidentsInvolving	1.2
release	1.3, 1.3.1
releaseYN	1.3
releaseInit	1.3.1
releaseMajor	1.3.1
fire	1.4
fireYN	1.4
fireInit	1.4.1
fireMajor	1.4.1
explosion	1.5, 1.5.1
explosionYN	1.5
explosionInit	1.5.1
explosionMajor	1.5.1
transport	1.6, 1.6.1
transportYN	1.6
transportInit	1.6.1
transportMajor	1.6.1
other: CharacterString	1.7

# Accident description – Structure and format

Accident Description \*

0

Accidents Involving:

Contractors; Transboundary Effects

Did the accident involve a release?

No

Did the accident involve a fire?

No

Did the accident involve an explosion?

No

Did the accident involve transport?

Yes

Type of transport involved in a main occurrence

Air; Road

Type of transport involved in an initiating event

Rail; Road

Details if other type of accident not covered above

0



# Accident description – proposed changes and points to observe

- › Saying yes or no for each type of event, then entering info
  - › To ensure no type of event is missed
  - › Ensuring at least “high level” events are added
- › Currently entered by clicking through tabs for each type of event



# Comparison with current

## Current: Accident Description

Accident Description

Accident Description \*

Accidents Involving

☐ Domino Effects

☐ Natech Events

☐ Transboundary Effects

☐ Contractors

☐ Release

☐ Fire

☐ Explosion

☒ Transport

☐ Other/Unknown

Major Occurences

☐ air

☐ rail

☐ road

☐ water (sea, river, etc)

Initiating Events

☐ air

☐ rail

☐ road

☐ water (sea, river, etc)

## Reportnet:

Accident Description

Accident Description \*

Accidents Involving:

Domino Effects; Transboundary Effects

Did the accident involve a release?

No

Did the accident involve a fire?

No

Did the accident involve an explosion?

No

Did the accident involve transport?

Yes

Type of transport involved in a main occurrence

Air; Road

Type of transport involved in an initiating event

Rail; Road

Details if other type of accident not covered above

# Site and Installation



# Site and installation - Requirements

- › Description of the site and installation where the event occurred
- › Details if there have been equipment failures related to: storage, process, transfer, or transport

Attribute	Item number in the Commission Decision (Part II)
siteDescription	2.1
installationDescription	2.2
operationalPhasesInvolved	2.3, 2.4, 2.5, 2.6
storageType	2.3.1
eventCategory	2.3.1
storageEquipmentType	2.3.2
processType	2.4.1
eventCategory	2.4.1
processEquipmentType	2.4.2
transferType	2.5.1
eventCategory	2.5.1
transferEquipmentType	2.5.2
transportType	2.6.1
eventCategory	2.6.1
transportEquipmentType	2.6.2
otherEquipment	2.7

# Site and installation – Structure and format

Site Description \* ⓘ


Installation Description \* ⓘ

Please select which areas of the site/installation were involved in the accident ⓘ

Storage x

x

▼

Details if storage involved 

+ Add record

Type of storage involved ⓘ

Was the storage involved during an initiating event or as a major occurrence? ⓘ

Type of equipment that failed ⓘ

Details if other type of equipment not covered above ⓘ



# Site and installation – changes and points to observe

- › Selecting specific phases before entering relevant equipment failures and other details
  - › To ensure no failure is missed
  - › Ensuring at least “high level” failures are added
  - › (Currently entered by clicking through tabs)

# Site and installation – proposed changes and points to observe

- › Equipment types in the CD are different for each category (process, storage...), this is not the case in the current implementation

## 2.4.2 Equipment type

Information about the type of equipment that failed, selected from:

- ☐ reaction vessel; non-pressurised
- ☐ reaction vessel; pressurised
- ☐ other

### Equipment type

▼

- not known / not applicable -

- other -

container; non-pressurised (hopper, tank, drum, bag, etc.)

container; pressurised (bullet, sphere, cylinder, etc.)

container; non-ambient temperature (refrigerated or heated)

free placement (unconfined pile, stack, etc; if bagged or in cylinders, ...)

reaction vessel; non-pressurised

reaction vessel; pressurised

machinery/equipment (pump, filter, column separator, mixer, etc.)

heat exchanger (boiler, refrigerator, heating coils, etc.)

valves/controls/monitoring devices/drain cocks

general pipework/flanges

power source (engine, compressor, etc.)

other transfer equipment/apparatus/vehicle

# Comparison with current

## Current:

Site Description \*

Installation Description \*

☐Storage

☐Process

☐Transfer

☐Transport

☐Other/Unknown

Major Occurrences

- ☐ process-associated (stockholding, etc. on-site of manufacture)
- ☐ distribution-associated (not on-site of manufacture)
- ☐ other
- ☐ not known / not applicable

Initiating Events

- ☐ process-associated (stockholding, etc. on-site of manufacture)

Equipment type

Equipment type

## Reportnet:

Site Description \*

Installation Description \*

Please select which areas of the site/installation were involved in the accident

Storage

Details if storage involved

+ Add record

Type of storage involved

Was the storage involved during an initiating event or as a major occurrence?

Type of equipment that failed

Details if other type of equipment not covered above

# Substances involved

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# Substances involved - Requirements

- › Substances involved in the accident: a description and details for all substances involved
- › The CD envisages this to be substances notifiable under the Seveso Directive

Attribute	Item number in the Commission Decision (Part II)
substancesDescription	3.1
substanceInvolved	3.2-3.5
substanceClassification	3.2
substanceName	/
numberCAS	3.3
quantityDirectlyInvolved	3.4
quantityPotentiallyInvolved	3.5

3 SUBSTANCES INVOLVED

A description of the substances involved in the accident that are either notified or notifiable for the establishment under Article 6 and classified according to Annex I to the Directive. As well as the name, the CAS number and estimates of the quantities of the most important dangerous substances involved (or potentially involved), any relevant information on their characteristics should be included, e.g. whether liquid, powder, etc., and whether they are 'raw materials', 'on-site intermediates', 'normal finished products' or 'possible abnormal products'.



# Substances involved – examples of data

Formula	H <sup>+</sup> Cl <sup>-</sup>	H <sup>+</sup> F <sup>-</sup>
<b>CAS number</b>	7647-01-0	7664-39-3
<b>Seveso III Directive</b>	Hydrogen chloride (liquefied gas)	Not a named substance
<b>CLP Regulation</b>	Hydrogen chloride	Hydrogen fluoride Hydrofluoric acid ... %
<b>ECHA substance card</b>	Hydrogen chloride	Hydrogen fluoride
<b>Substance names in the eMARS database</b>	Aqueous Ammonia Solution gaseous hydrochloric acid (HCl) hydrochloric acid Hydrochloric acid (31-33%) Hydrochloric Acid, HCl hydrocloridric acid hydrogen chloride Hydrogen Chloride (liquefied gas)	Hydrogen Fluoride Hydrofluoric acid Hydrofluoric acid 72-75%, aqueous solution Hydrogen Flouride Hydrogen flouride (HF) Hydrogen fluoride Hydrogen Fluoride (HF) (Anhydrous) Hydrogen fluoride 40 % Hydrogen fluoride gas, lighter than air hydrogen-fluoride New substance

# Substances involved – examples of data

- › Spelling issues with CAS numbers, e.g.
  - › Leading zeroes, “07647-01-0” (and leading blanks)
  - › Multiple numbers in the cell, e.g. “00106-97-8; 00075-28”
  - › Dots and not dashes, “74.87.3”
  - › Missing control number, or extra digits in control number  
“7664-41-07”, or “7664-41”
- › Other formats: “A-C025”, “EWC 06 05 02”, “2,236”

# Substances involved – proposed changes and points to observe

- › The name and CAS number are proposed to come from lists rather than being free text fields
- › To allow improved data quality
- › Bring closer to the CD requirement

**Substance Involved**

**CAS Number**

**Directly Involved  
(tonnes)**

**Potential Quantity  
(tonnes)**



- › It could be possible to add another field for additional substances that do not fall in the above



# Substances involved – Structure and format

Substances Involved Description \* ⓘ

Substances involved ✎

+ Add record

Substance category ⓘ

No substances

Substance name ⓘ

CAS Number ⓘ

-

Directly Involved (Tonnes) ⓘ

Potential Quantity (Tonnes) ⓘ

# Causes

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# Causes - Requirements

- › Description of the causes of the accident
- › Details by type of causative factors, e.g. equipment, human, organisational, external

Attribute	Item number in the Commission Decision (Part II)
causesDescription	4.1
causativeFactorType	4.2, 4.3, 4.4, 4.5, 4.6
causesPlantEquipment	4.2.1
causesHuman	4.3.1
causesOrganisational	4.4.1
causesExternal	4.5.1
causesOtherDescription	4.6

# Causes – Structure and format

Causes Description \*

0

Causative factors ⓘ

External; Plant/equipment

Plant/Equipment related causative factors ⓘ

corrosion/fatigue

External factors

natural event (weather, temperature, earthquake, etc.)

# Causes – proposed changes and points to observe

- › Selecting types of causative factors before entering relevant details
  - › Ensuring at least “high level” causes are entered
  - › (Currently entered by clicking through tabs)
- › Drop-downs for causative factors: without “not known / not applicable” and “not identified”

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## Causative Factor

- ☐ operator error
- ☐ operator health (includes ailments, intoxication, death, etc.)
- ☐ wilful disobedience/failure to carry out duties
- ☐ malicious intervention
- ☐ other
- ☐ not known / not applicable
- ☐ not identified

# Causes – changes and points to observe

› “Type” in the current system not envisaged in the new system

**Causative Factor**

- ☐ operator error
- ☐ operator health (includes ailments, intoxication, death, etc.)
- ☐ wilful disobedience/failure to carry out duties
- ☐ malicious intervention
- ☐ other

**Type**

none

**inadequate**

inappropriate

unclear

# Consequences





# Consequences - Requirements

- › Description of the consequences of the accident
- › Details by type of consequences (human, environmental, material, disruption)

Attribute	Item number in the Commission Decision (Part II)
consequenceDescription	5.1
consequencesType	5.2, 5.3, 5.4, 5.5
humanEffectsLocation	5.2.1
typeHumanEffect	5.2.2
humanEffectsQuantity	5.2.3
humanEffectsDesc	5.2.3
envEffectsLocation	5.3.1
typeEnvironmentalEffect	5.3.2
envEffectsQuantity	5.3.3
envEffectsDesc	5.3.3
costEffectsLocation	5.4.1
typeCostEffect	5.4.2
costEffectsQuantity	5.4.3
costEffectsDesc	5.4.3
disruptionEffectsDesc	5.5.1
effectsLocation	5.5.2
typeDisruptionEffect	5.5.3
disruptionEffectsQuantity	5.5.3

# Consequences – Structure and format

Consequences Description ⓘ

Did the accident involve the following types of consequences? ⓘ

Human x

Details on Human Consequences ✎

+ Add record

Information where the effects were: off-site or on-site? ⓘ

on-site

Type of harm to humans ⓘ

Fatalities

Quantity (integer) ⓘ

1

Other qualitative information on the effects of the harm to humans ⓘ

none

# Consequences – proposed changes and points to observe

- › Selecting types of consequences before entering relevant details
  - › Ensuring at least “high level” consequences are entered
  - › (Currently entered by clicking through tabs)
- › MAHB converted all “quantity” fields to quantitative values (from free text) in 2024, this will be this way in the new system
- › Discussion to remove “on-site” effects from environmental consequences options



# Emergency response

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# Emergency response – Requirements


- › Description of emergency and remedial measure
- › Details by type of emergency response (evacuation, sheltering, etc.)
- › Details of remedial measures taken (e.g., decontamination)

Attribute	Item number in the Commission Decision (Part II)
emergencyResponseDescription	6.1
emergencyResponseMeasure	6.2.1-6.2.2
responseMeasureType	6.2.1
ERquantity	6.2.2
ERquantityEffect	6.2.2
remedialMeasure	6.3.1-6.3.2
remedialMeasureType	6.3.1
RMquantity	6.3.2
RMquantityEffect	6.3.2





# Emergency response – Structure and format


Emergency response description \* 

Information about emergency response 

+ Add record

Type of emergency response 


Quantity 

Description of effects 


evacuation


10


10 workers evacuated

Information about remedial measures 

+ Add record

Remedial measure type 

Quantity 

Description of effects 

other

first aid provided

# Emergency response – proposed changes and points to observe

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- › Layout change, no significant update



# Lessons learned

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# Lessons learned – Requirements and format

- › Lessons learned description and themes
- › No significant change

Attribute	Item number in the Commission Decision (Part II)
lessonsLearnedThemes	7.1
lessonsLearnedDescription	7.2

A description of any practical, organisational or other lessons learned on the prevention of accidents

Select the theme(s) of Lessons Learned \*

Causes - External; Causes - Organisational; Emergency Response

▼

Lessons Learned Description \*



Next steps





# Key next steps

- › Development of data output
  - › Hosted at EEA
  - › Content (download data, dashboards)
  - › User inputs will be key!
- › Import and verify data (test phase)
  - › JRC MAHB -> EEA backend -> EEA frontend -> user verification

-> Completed

-> Pending

# Questions? Comments?

## WRITE TO US:



[Seveso.Helpdesk@eea.europa.eu](mailto:Seveso.Helpdesk@eea.europa.eu)

European Environment Agency

