European Commission

European IPPC Bureau

The role of BAT conclusions and BREFs in the Industrial Emissions Directive (IED)

Slaughterhouses and Animal By-products (SA BREF)

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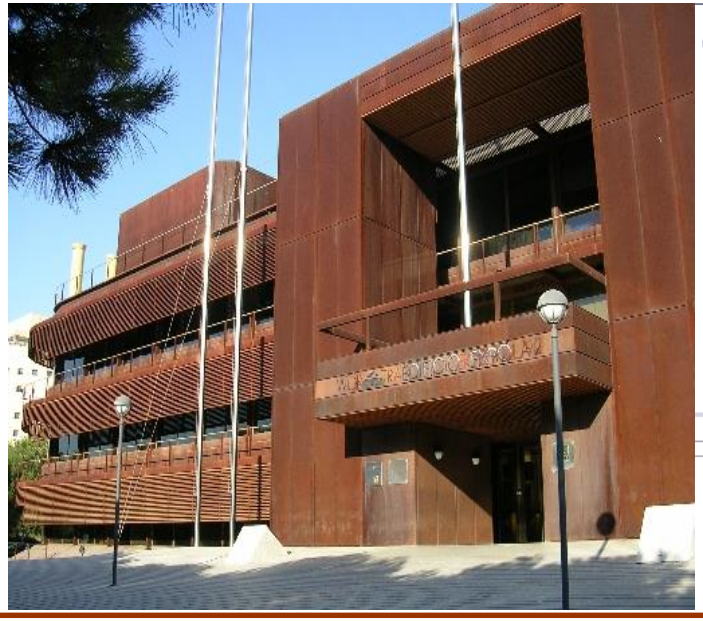
JRC Seville

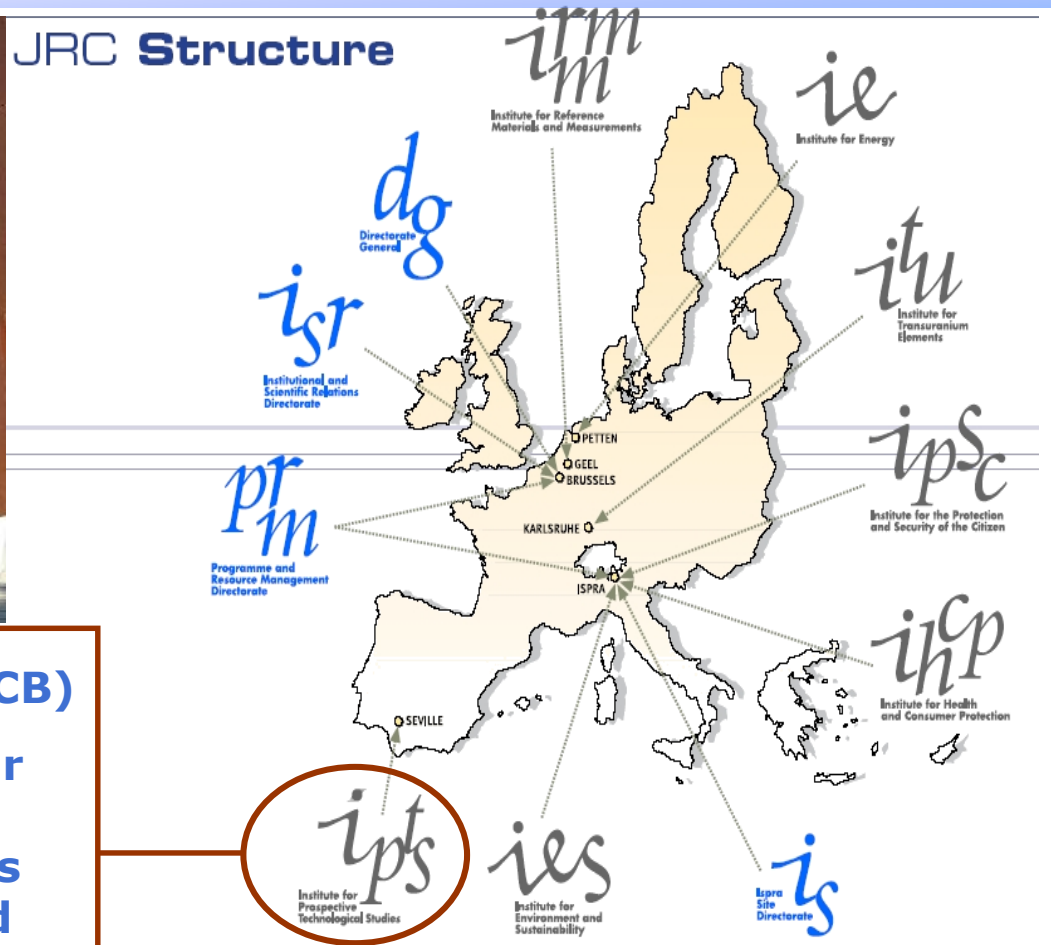
Joint Research Centre

Outline of this presentation

- 1 – The Industrial Emissions Directive (IED)
- 2 – The Sevilla process
- 3 – Challenges for the review of BREFs under the IED

Directorate B in the context of the Joint Research Centre





European IPPC Bureau (EIPPCB)

~20 staff within the Circular Economy and Industrial Leadership Unit of the JRC's Directorate B – Growth and Innovation (former IPTS)

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1 - The Industrial Emissions Directive (2010/75/EU)

Industrial Emissions Directive 2010/75/EU (IED)

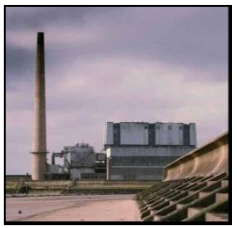
- **Key instrument for minimising consumption and the emissions of industrial activities in Europe**
- *General framework:*
  - **prevent** and, if not feasible, reduce pollution
  - high level of **protection for the environment as a whole**
  - **permit based on Best Available Techniques (BAT)**

BAT are determined by a Technical Working Group steered by the JRC (EIPPCB) and documented in BREFs

'BAT conclusions' are secondary legislation

Annex I to IPPC and IED Directive

Wide range of industrial activities listed:





- **Energy industries**
- **Production and processing of metals**
- **Mineral industries**
  cement, lime, glass, ceramics
- **Production of chemicals**
- **Waste management industries**
  Several recovery or disposal operations
  Incineration
- **'Other' industries:**
  Pulp and paper, textile processing
  Tanning of hides and skins
  Intensive farming of pigs and poultry, **slaughterhouses and animal by-product processing**, food drink and milk processing, surface treatment using solvents

~ 50 000 IED installation in Europe

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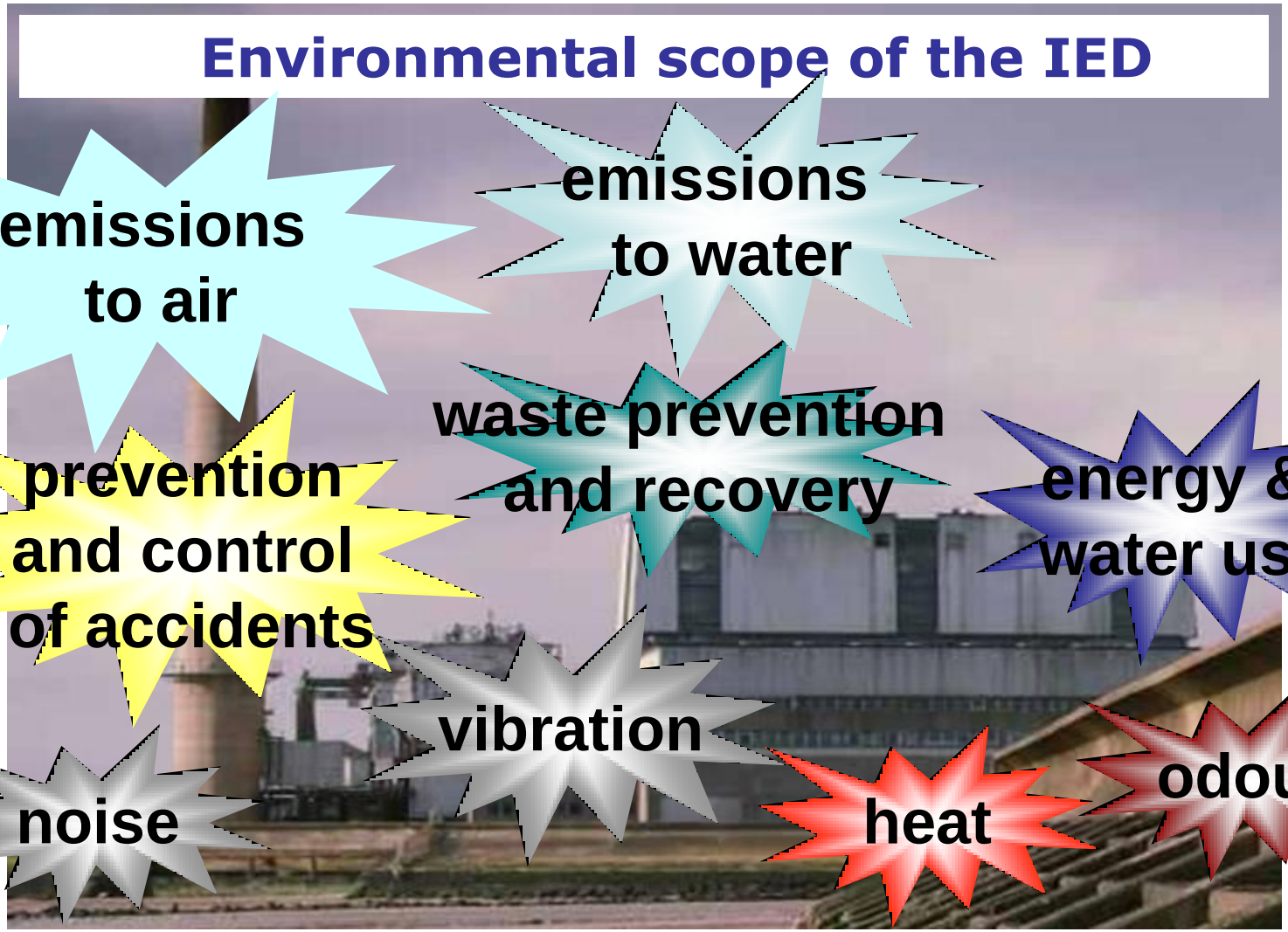
Environmental scope of the IED



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Definition of BAT in the IED

***B**est* — Most effective in achieving a **high general level** of protection of the environment **as a whole**

***A**vailable* — Developed on a scale which allows implementation in the relevant industrial sector, under **economically and technically viable conditions**

***T**echniques* — **Both** the technology used and the way in which the installation is **designed, built, maintained, operated and decommissioned**

Note: in determining BAT, special consideration should be given to the criteria listed in Annex III of the IED

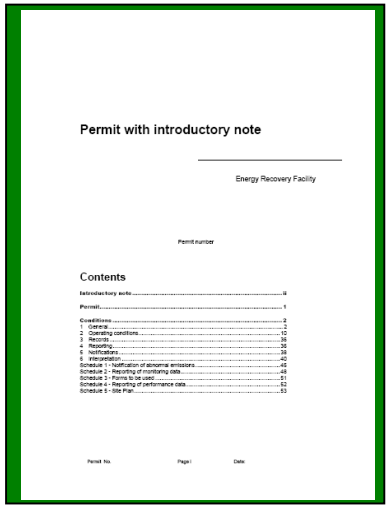
Role of BAT conclusions in IED permitting

BAT conclusions are the reference for setting permit conditions

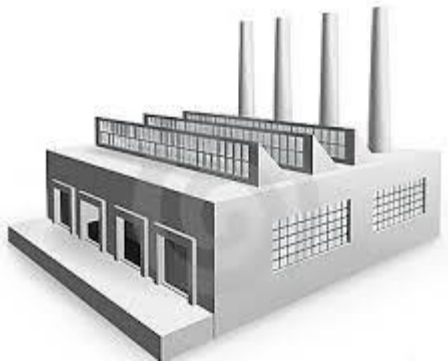
Permits to contain **emission limit values** (ELVs) to ensure that, under normal operating conditions, **emissions do not exceed BAT-associated emission levels (BAT-AELs)**

Derogation from BAT-AELs is only allowed in specific and justified cases

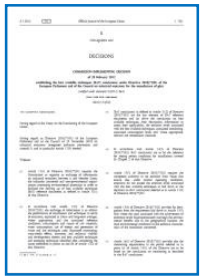
- Need to demonstrate that costs are disproportionately higher than benefits due to local/installation-specific situations
- Member States report to the public/Commission on use of derogations



Reconsidering / updating permit conditions (IED Article 21)



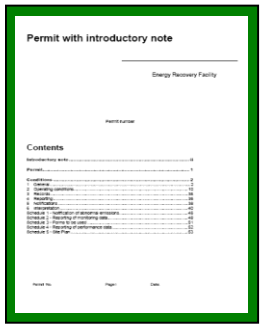
BAT conclusions



published in the OJ

4 years

IED permit



*(a) **all permit conditions reconsidered** and updated*
*(b) **the installation complies** with those conditions*

*The reconsideration shall **take into account all the new or updated BAT conclusions** applicable to the installation and adopted since the permit was granted or last reconsidered*

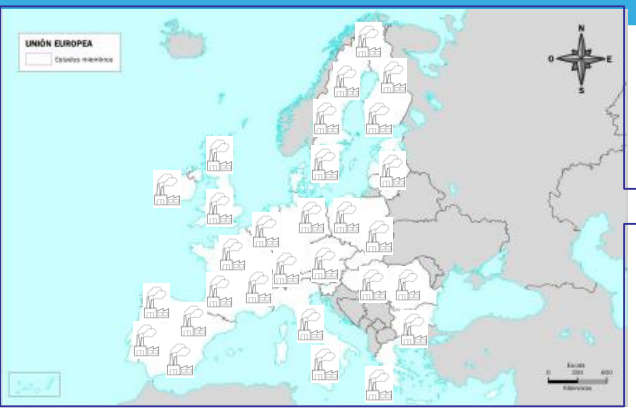
2 - The Sevilla process

A complex **consensus-building** exchange of information with numerous **stakeholders** and underpinned by **sound techno-economic information** that has been enshrined into law by:

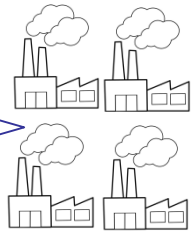
Commission Implementing Decision 2012/119/EU

European Commission

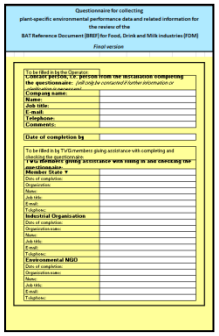
European IPPC Bureau



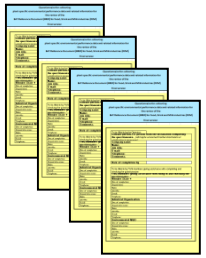
1. Installations UE-28



2. Selection of reference installations

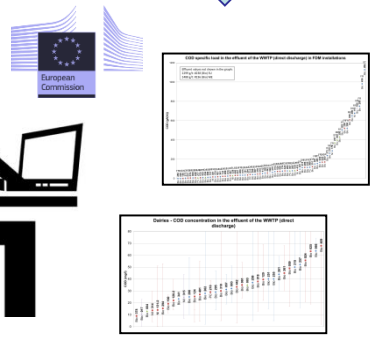


3. Questionnaire design



4. Data collection

Techno-scientific process



5. Data and information processing

6. Experts meetings

7. BREFs and BAT conclusions

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The Sevilla process

Industry

Environmental NGOs

TWG
kick-off meeting

EU Member States
+ EFTA and Accession Countries

European Commission/ EIPPCB

Draft 1 (D1)

Draft 2 (D2) *

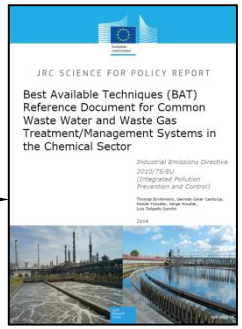
Data + information (questionnaires)

Comments

Final TWG meeting

Final draft

- **Forum opinion on BREF**
- **Adoption of BAT conclusions through the IED Art. 75 Committee**



BAT conclu-sions

*** D2 optional**

Total duration:

- **24 – 29 months (without D2)**
- **29 – 39 months (with D2)**

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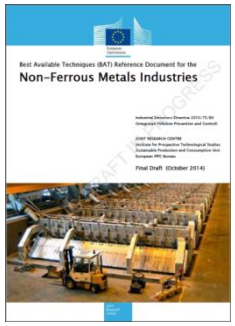
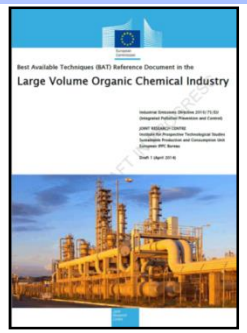
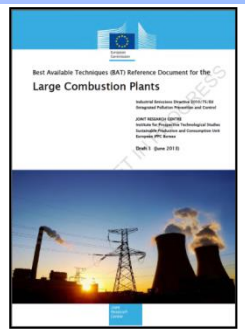
Typical BREF structure







- **Preface**
- **General information about the sector concerned .....Chapter 1**
- **Applied processes and techniques ..... Chapter 2**
- **Current emission and consumption levels.....Chapter 3**
- **Techniques to consider in the determination of BAT.....Chapter 4**
- **Best available techniques (BAT) conclusions .....Chapter 5**
- **Emerging techniques.....Chapter 6**
- **Concluding remarks and recommendation for future works (including suggestions for R&D)**

200 to 1250 pages

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Setting up the TWG

- **EIPPCB BREF team re-activates the TWG**

  Email invitation to join the TWG

  Set up TWG space on BATIS

- **Each Forum member nominate TWG members**

  Each nominates 0 to 4 TWG members who will attend meetings

- **Some MS and trade associations set up a TWG "shadow group" to review documents and support the TWG members**

  Members of a shadow group have access to a private working area on BATIS to make comments on draft documents. TWG member checks shadow group comments before sending them to EIPPCB

Exchange of information

Main input forms:

- Information on BAT candidates and emerging techniques
- Data collection: questionnaires + bulk information (case studies, technical reports, permits etc.
- Comments to BREF drafts

Main communication channels:

- Meetings: TWG plenary meetings, TWG subgroups, bilateral exchanges
- Site visits
- BATIS information exchange platform

Information on BAT candidates and emerging techniques

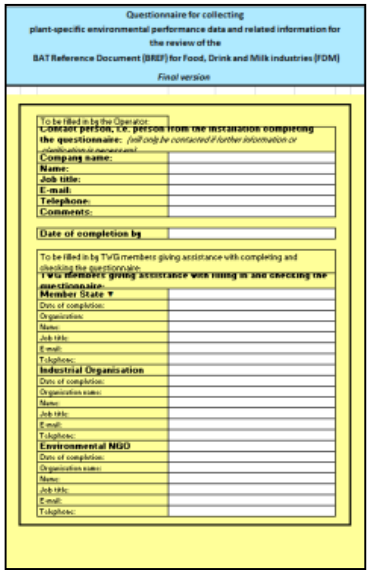
The 10-heading format on candidate BAT exchange of information:

- Description
- Technical description
- Achieved environmental benefits
- Environmental performance and operational data
- Cross-media effects
- Technical considerations relevant to applicability (for new and existing plants)
- Economics
- Driving force for implementation
- Example plants
- Reference literature

Data collection

Data collection step is crucial for determining BAT:

1. Plants/installation **specific questionnaire template**:
    - Drafted by the EIPPCB and agreed within the TWG, based on the conclusions of the TWG Kick-off-meeting, covering environmental performance and operational data for:
        - Consumption of raw materials, water, energy
        - Emissions to air and water
        - Residues/waste
        - Additional information (e.g. contextual info, monitoring issues, operating conditions)


Questionnaire for collecting
plant-specific environmental performance data and related information for the review of the
BAT Reference Document (BREF) for Food, Drink and Milk industries (FDM)
Final version

To be filled in by the Operator
Contact person, i.e. person from the installation completing the questionnaire: (will only be contacted if further information or clarification is necessary)
Company name:
Name:
Job title:
E-mail:
Telephone:
Comments:

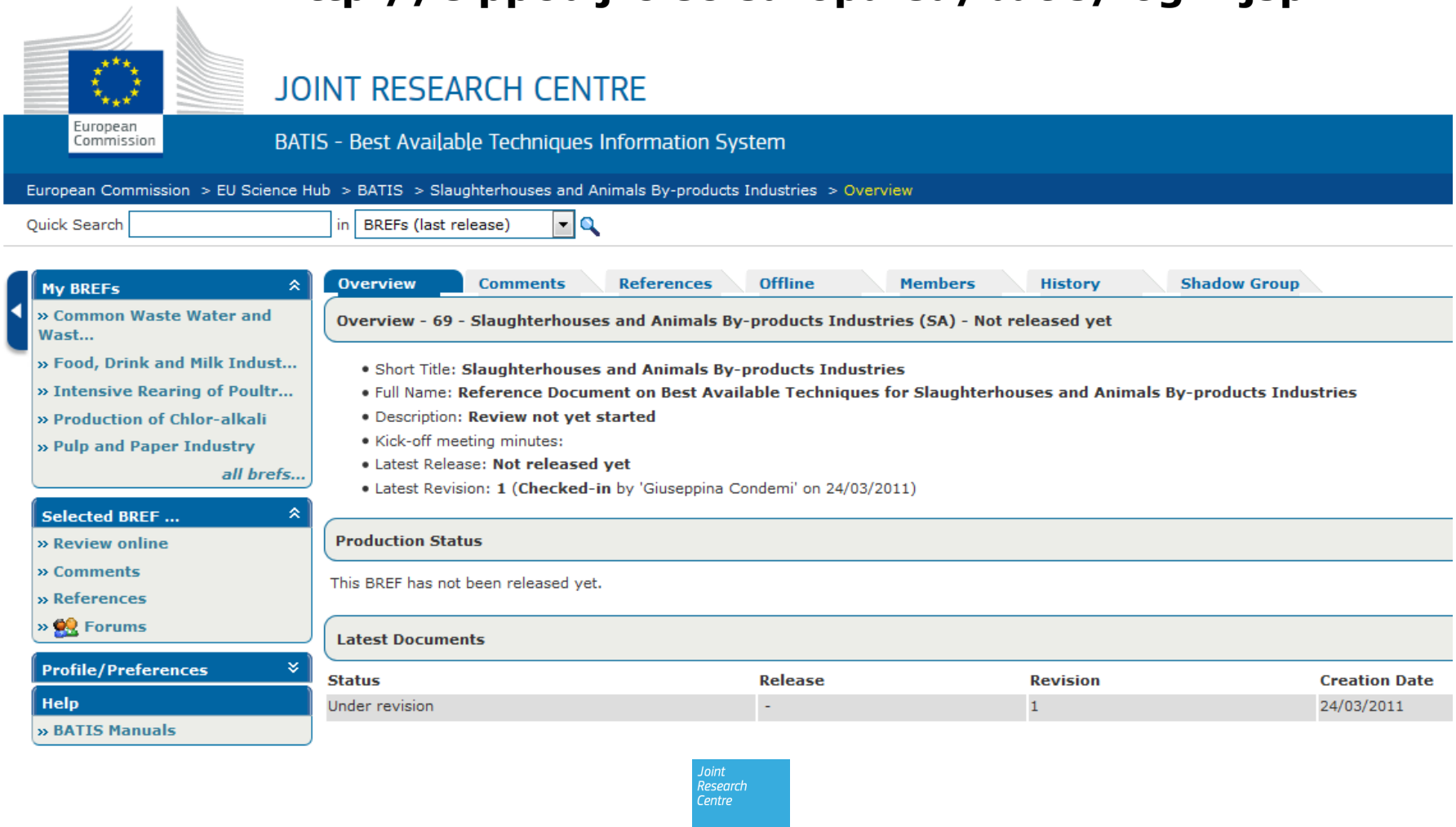
Date of completion by

To be filled in by TWG members giving assistance with completing and checking the questionnaire
TWG members giving assistance with filling in and checking the questionnaire:
Member State
Date of completion:
Organisation:
Name:
Job title:
E-mail:
Telephone:
Industrial Organisation
Date of completion:
Organisation name:
Name:
Job title:
E-mail:
Telephone:
Environmental NGO
Date of completion:
Organisation name:
Name:
Job title:
E-mail:
Telephone:

2. Bulk information on the sector concerned (studies, reports, etc)

BATIS

http://eippcb.jrc.ec.europa.eu/batis/login.jsp



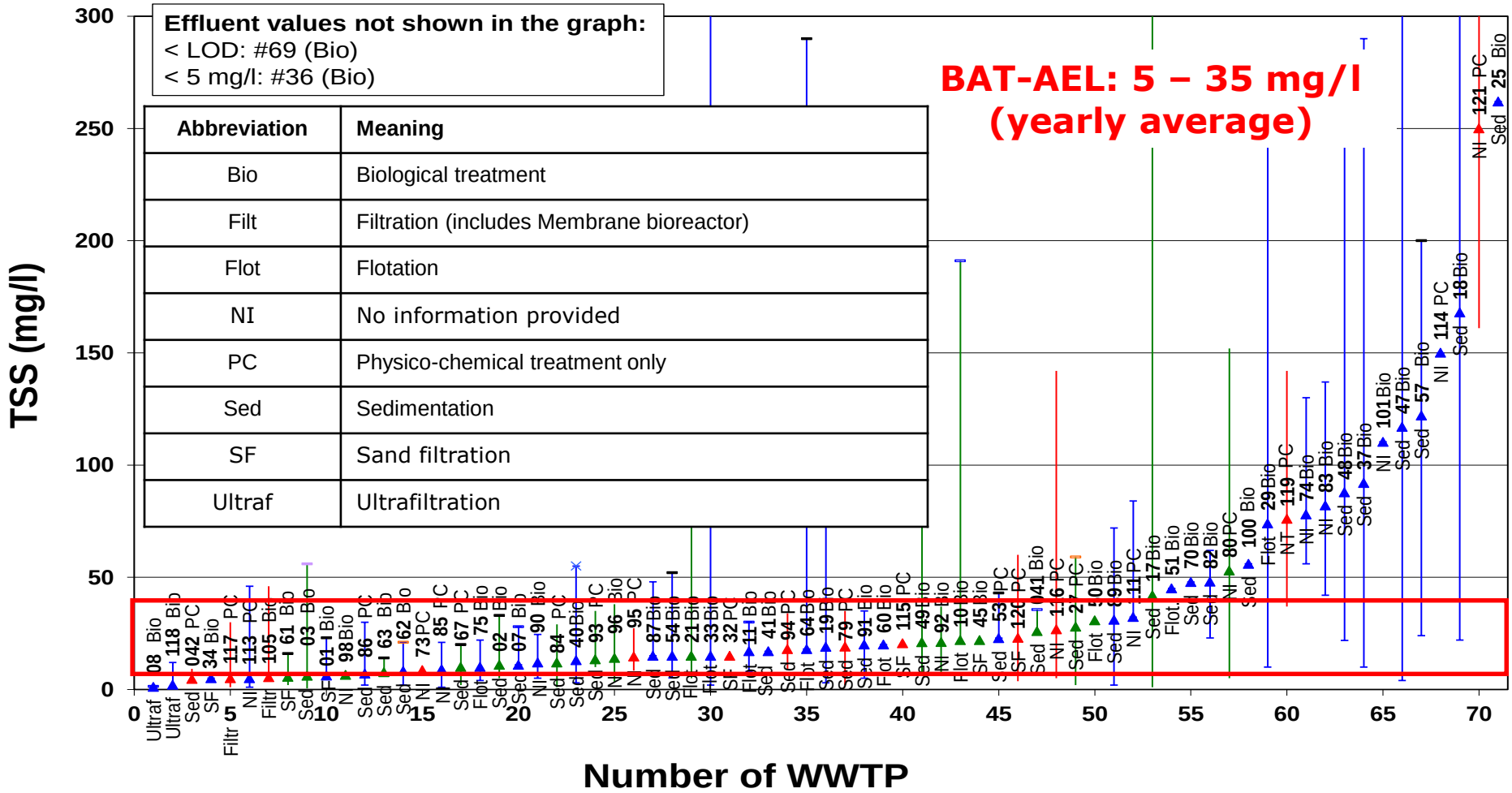
EXAMPLE OF BATC: CWW, TSS emissions to water

BAT 12. In order to reduce emissions to water, BAT is to use an appropriate combination of final waste water treatment techniques.

Appropriate final waste water treatment techniques, depending on the pollutant, include:

Final solids removal			
Technique		Typical pollutant abated	Applicability
(h)	Coagulation and flocculation	Suspended solids	Generally applicable
(i)	Sedimentation		
(j)	Filtration (e.g. sand filtration, microfiltration, ultrafiltration)		
(k)	Flotation		

TSS emissions in waste water from the chemical sector



Abbreviation	Meaning
Bio	Biological treatment
Filt	Filtration (includes Membrane bioreactor)
Flot	Flotation
NI	No information provided
PC	Physico-chemical treatment only
Sed	Sedimentation
SF	Sand filtration
Ultraf	Ultrafiltration

BAT-AELs for waste water treatment in the chemical sector

BAT-AELs for direct emissions to a receiving water body

Parameter	BAT-AEL (yearly average)	Conditions
Total suspended solids (TSS)	5,0-35 mg/l ([7]) ([8])	The BAT-AEL applies if the emission exceeds 3,5 t/yr.

([7]) The lower end of the range is typically achieved when using filtration (e.g. sand filtration, microfiltration, ultrafiltration, membrane bioreactor), while the upper end of the range is typically achieved when using sedimentation only.
([8]) This BAT-AEL may not apply when the main pollutant load originates from the production of soda ash via the Solvay process or from the production of titanium dioxide.

Example of BATC: REFINERIES - Dust and metals emissions to air from FCC (1/5)

BAT 25. In order to reduce dust and metals emissions to air from the catalytic cracking process (regenerator), BAT is to use one or a combination of the techniques given below.

I. Primary or process related techniques, such as:

Technique		Description	Applicability
(i)	Use of an attrition-resistant catalyst	Selection of catalyst substance that is able to resist abrasion and fragmentation in order to reduce dust emissions	Generally applicable provided the activity and selectivity of the catalyst are sufficient

Example of BATC: REFINERIES - Dust and metals emissions to air from FCC (2/5)

Technique		Description	Applicability
(ii)	Use of low sulphur feedstock (e.g. by feedstock selection or by hydrotreatment of feed)	Feedstock selection favours low sulphur feedstocks among the possible sources to be processed at the unit. Hydrotreatment aims at reducing the sulphur, nitrogen and metal contents of the feed. See Section 1.20.3	Requires sufficient availability of low sulphur feedstocks, hydrogen production and hydrogen sulphide (H_2S) treatment capacity (e.g. amine and Claus units)

Example of BATC: REFINERIES - Dust and metals emissions to air from FCC (3/5)

II. Secondary or end-of-pipe techniques, such as:

Technique		Description	Applicability
(i)	Electrostatic precipitator (ESP)	See Section 1.20.1	For existing units, the applicability may be limited by space availability
(ii)	Multistage cyclone separators	See Section 1.20.1	Generally applicable
(iii)	Third stage blowback filter	See Section 1.20.1	Applicability may be restricted

Example of BATC: REFINERIES - Dust and metals emissions to air from FCC (4/5)

Technique		Description	Applicability
(iv)	Wet scrubbing	See Section 1.20.3	The applicability may be limited in arid areas and in the case where the by-products from treatment (including e.g. waste water with high level of salts) cannot be reused or appropriately disposed of. For existing units, the applicability may be limited by space availability

BAT-associated emission levels: See Table 5.

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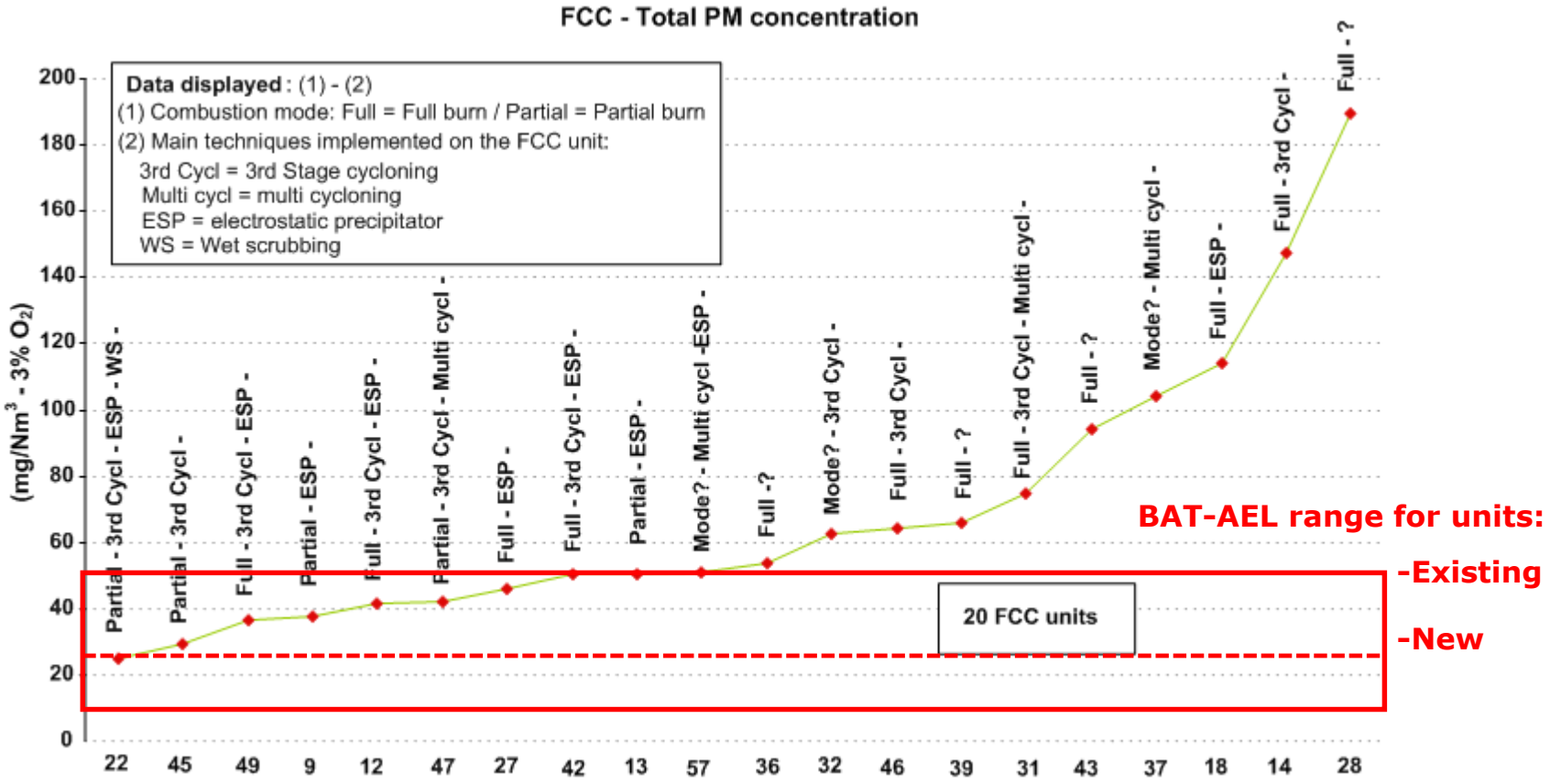
Dust emissions from FCC units, REF BREF data collection



Example of BATC: REFINERIES - Dust and metals emissions to air from FCC (5/5)

Table 5: BAT-associated emission levels for dust emissions to air from the regenerator in the catalytic cracking process

Parameter	Type of unit	BAT-AEL (monthly average)(1) (mg/Nm^3)
Dust	New units	10 – 25
	Existing units	10 – 50 (2)

(1) Soot blowing in CO boiler and through the gas cooler is excluded.
(2) The lower end of the range can be achieved with a 4-fields ESP

The associated monitoring is in BAT 4.

Key messages of the Sevilla Process

- **Cooperative** approach: involvement of the TWG
- **Iterative** approach: several rounds of proposals
- **Pragmatic** approach: "real-life plants"
- **Expert judgement** is key
- **No software / statistical method**
- But a **Transparent /** traceable / verifiable data basis

3 - Challenges for the review of BREFs under the IED

Improving the environmental effectiveness of the BREFs

- **Need for a more focused approach**

  Building on the existing BREF and updating the parts required for BAT conclusions by targeting key environmental issues (KEI)

- **A front-loading approach**

  Preparing early to allow timely submission of information

- **Deliver high quality output within constraints**

  Time: 24-31 months (as set in the BREF Guidance)

  Available resources (staff / money)

Criteria to identify KEI

Some questions assisting prioritisation:

- **What is the environmental relevance?**
  - Large and widespread impact?
  - Contributing to a specific but severe problem?
- **What is the significance of the activity?**
  - How many installations are there and where?
  - What is their contribution to the total emissions?
- **What is the potential:**
  - for identifying new or additional techniques that would further significantly reduce pollution?
  - for BAT-AELs that would significantly improve the level of environmental protection from current emission levels.

What could stakeholders do to prepare for the review of a BREF?

- Become familiar with the BREF Guidance (2012/119/EU)
- Look at recently adopted BAT conclusions (e.g. Large Combustion Plants; Chlor-Alkali; Pulp, Paper and Board; Intensive Rearing of Poultry or Pigs)
- Examine the current BREF BAT conclusions and **start thinking of possible BAT conclusions for the sector** to meet the content and format set by the BREF Guidance
  - Clarity, accuracy, preciseness, completeness, consistency, etc.
  - With respect to Scope, Structure, Techniques, Applicability, BAT-AE(P)Ls
  - Key environmental issues for the sector? Directly associated activities?

What could stakeholders do to prepare for the review of a BREF?

- **Scope**
  - Have there been major changes in the sector that need reflection in the scope of the BREF?
  - Any applied processes obsolete / any new processes?
  - Directly associated activities

- **Key environmental issues (KEI)**
  - What are the KEI for the sector and are they addressed in the BREF (by BAT candidates and BAT conclusions)?

What could stakeholders do to prepare for the review of a BREF?

- **BAT candidates**
  - Any new candidates/any obsolete candidates? Developments on the emerging techniques in the current BREF?
  - Update of candidate techniques (10-heading structure) in the current BREF
  - Performance indicators: emission levels, consumption levels, other levels: e.g. abatement efficiency
- **BAT conclusions/BAT-AELs**
  - Need for a sound data basis for concluding on BAT-AELs
  - BAT-AELs are derived from real plants (plant-specific data)

What could stakeholders do to prepare for the review of a BREF?

- **DATA collection**
  - Identify well-performing plants that will participate in the collection of plant-specific information (questionnaires)
  - Take part in the data collection and provide necessary data

- **When to provide what?**
  - More basic information to define Scope, KEI, BAT candidates (new/obsolete) is considered useful already for preparing the call for initial positions (before the kick-off meeting)
  - Detailed data collection (questionnaires) ->after Kick-off meeting

Thank you for your attention

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