



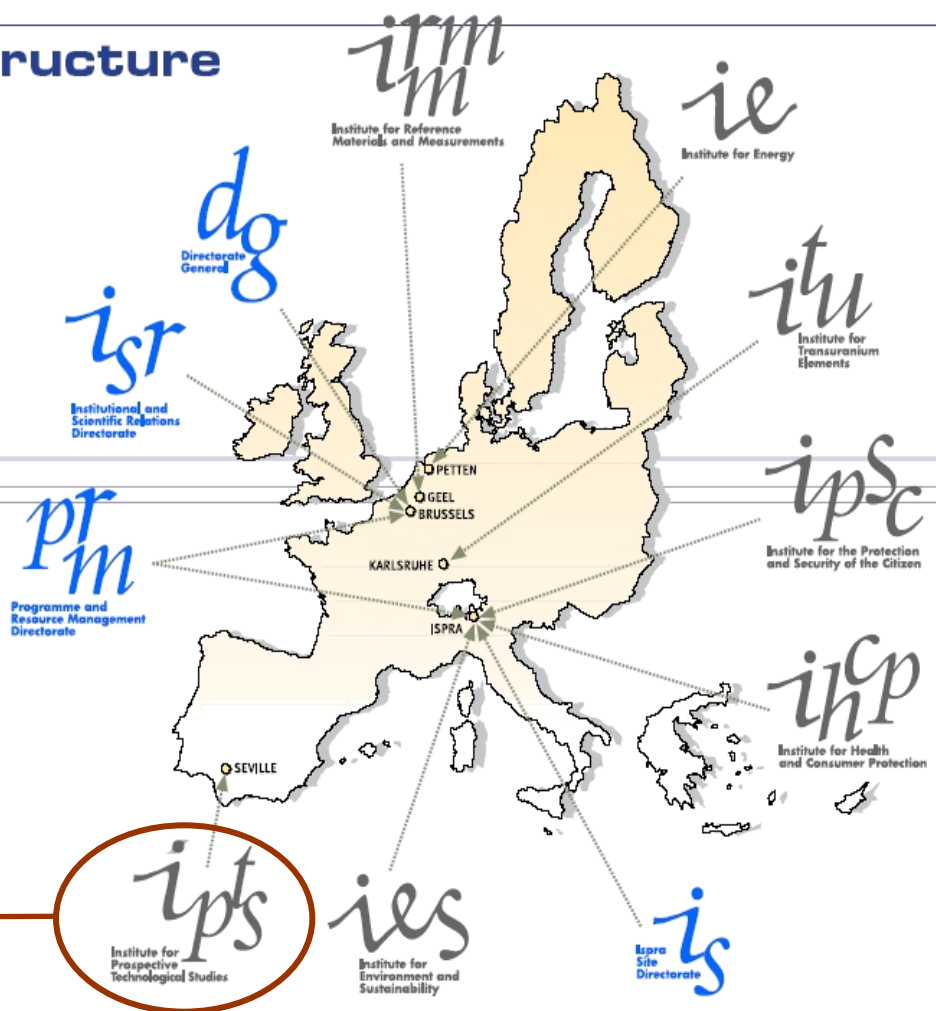
**Implementation of  
best available techniques (BAT)  
under the new  
European Union Industrial Emissions (Integrated  
Pollution Prevention and Control) Directive**

**A step forward  
for controlling pollution from industrial activities**

*Serge Roudier*  
*Head of the European IPPC Bureau*

## IPTS in the context of the Joint Research Centre (JRC) of the European Commission

### DG JRC Structure



### European IPPC Bureau (EIPPCB)

≅ 20 staff within the Sustainable Production and Consumption (SPC) Unit of the Institute for Prospective Technological Studies (IPTS)

## Outline

- **IPPC/IED, key community instrument for sustainable production and environmental protection**
- **Review of the IPPC Directive: IED**
- **The ‘Sevilla Process’ as a generator of knowledge**

# **IPPC/IED, key community instrument for sustainable production and environmental protection**

## **Evolution of the Integrated Pollution Prevention and Control (IPPC) regulatory framework**

**Council Directive 96/61/EC of 24 September 1996  
concerning integrated pollution prevention and control**



**Directive 2008/1/EC of 15 January 2008  
concerning integrated pollution prevention and control  
(Codified version)**



**Directive 2010/75/EU of 24 November 2010  
on industrial emissions (IED)  
(integrated pollution prevention and control) (Recast)**

## Other related legislation

- **Seveso Directive** (industrial accidents)
- **Water Framework Directive** (quality standards for 41 priority substances)
- **Urban Waste Water Treatment Directive** (for municipal sewage)
- **Air Quality Directive** (quality standards for NO<sub>x</sub>, SO<sub>2</sub>, PM, lead, benzene, CO)
- **National Emission Ceilings Directive** (national total emission controls for NO<sub>x</sub>, SO<sub>2</sub>, VOCs, ammonia)
- **Landfill Directive** (technical requirements for landfills)
- **Environmental Liability Directive** (in the case of environmental damage)
- **EMAS Regulation** (voluntary environmental management, audit and reporting scheme)

## What is an EU Directive?

- A *Directive* lays down the aims, scope and key requirements that the Member States **must** introduce into their national legislation
- It does not prescribe all details – many detailed issues must be determined by the Member States themselves, e.g. limit values, permit fees, inspections, penalties for breaches
- It allows Member States to impose even stricter requirements

# **The Integrated Pollution Prevention and Control System**

- **Key instrument for minimising emissions and consumptions from most industrial activities**
- **General framework:**
  - The purpose is to prevent (minimise) pollution from **industrial activities**
  - Achieve a high level of protection for the environment as a whole
  - Installations must be operated according to an integrated permit issued by competent authorities, containing emission limit values based on **Best Available Techniques (BAT)**

**Large combustion plants**  
**Paper mill at a big river (Qmin: 500 m<sup>3</sup>/s)**  
**Paper mill at a big river (Qmin: 500 m<sup>3</sup>/s)**



## Environmental scope

**emissions  
to air**

**emissions  
to water**

**emissions  
to land**

**prevention  
and control  
of accidents**

**waste prevention  
and recovery**

**energy &  
water use**

**noise**

**vibration**

**heat**

**odour**

## **Definition of BAT**

<b>Best</b>	<i>Most effective in achieving a <b>high general level of protection</b> of the environment as a whole</i>
<b>Available</b>	<i>Developed on a scale which allows implementation in the relevant industrial sector, under <b>economically and technically viable</b> conditions</i>
<b>Techniques</b>	<i>Both the technology used and the way in which the installation is <b>designed, built, maintained, operated and decommissioned</b></i>

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

## **‘BAT reference documents’ (BREFs)**

- Provide **‘BAT conclusions’** which shall be the reference for setting permit conditions
- Based on an intensive **exchange of information**
- Structured and prepared on the basis of established guidelines
- The actors involved in the exchange of information include:
  - Forum (Information Exchange Forum)
  - European IPPC Bureau (EIPPCB)
  - Technical Working Groups (TWGs)

# Review of the IPPC Directive: IED

## Recast of the IPPC Directive into IED due to

- 1) Insufficient implementation of **best available techniques** (BAT)
  - ➔ Strengthening of BAT and the role of the BAT reference documents (BREFs)
- 2) **Unnecessary administrative burdens** due to complexity and inconsistency of parts of the legal framework
  - ➔ Recast of IPPC into one single act with 6 other ‘sectoral’ directives
- 3) Insufficient **scope** and **unclear provisions** to achieve the ‘Thematic strategy’ objectives (air, waste, soil):
  - ➔ New minimum emission limit values for Large Combustion Plants bringing them in line with BAT
  - ➔ Introduction of some new activities and provisions on soil and groundwater protection to help meet the Thematic Strategies objectives

## **The Sevilla Process has been enshrined into law**

**The main concepts and processes developed by the EIPPCB since 1997 have been embedded into the text of the IED**

# **Timeline of the Industrial Emissions Directive (IED)**

## **2010/75/EU**

- **Recast of IPPC Directive 2008/1/EC and 6 other Directives on industrial emissions**
- **Proposal by Commission COM(2007)844 of 21 December 2007**
- **‘Co-decision’ negotiations in Council of the European Union and European Parliament (EP) 2008 – 2010**
- **Agreement on amended text by Council/EP: end June 2010**
- **Voted in EP on 7 July 2010**
- **Adopted by Council on 8 November 2010**
- **Published in Official Journal on 17 December 2010**
- **Entered into force on 6 January 2011**
- **Transposition within 2 years after entry into force (6/1/2013)**

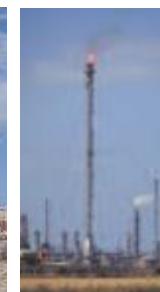
## **IED amends a number of EU legislations**

### **➔ It amends existing legislation concerning industrial emissions:**

- **Large Combustion Plants (LCP) Directive 2001/80/EC**
- **Waste Incineration (WI) Directive 2000/76/EC**
- **Directive on VOC emissions from solvents 1999/13/EC**
- **Directives related to the titanium dioxide industry 78/176/EEC, 82/883/EEC and 92/112/EEC**
- **European Pollutant Release and Transfer Register (E-PRTR) Regulation 166/2006**

## **Annex 1 to the IED**

- **Wide range of industrial activities listed:**
  - **Energy industries – LCP, refineries**
  - **Production and processing of metals**
  - **Mineral industries**
    - *cement, lime, glass, ceramics*
  - **Production of chemicals**
  - **Waste management industries**
    - *Incineration*
    - *Some recovery or disposal operations*
  - **‘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 IPPC installations in Europe**

# The Sevilla Process as a generator of knowledge

***A complex consensus-building exercise  
with numerous stakeholders and underpinned  
by sound techno-economic information***

# The basis to determine best available techniques (BAT)

## ➤ **Article 13(1) of the Industrial Emissions Directive 2010/75/EC:**

- ‘In order to draw up, review and, where necessary, update **BAT reference documents**, the Commission shall organise **an exchange of information** between Member States, the industries concerned, non-governmental organisations promoting environmental protection and the Commission’

## ➤ **The exchange of information should address:**

- the performance of installations and techniques in terms of emissions and consumptions, etc.
- the techniques used, associated monitoring, economic and technical viability, etc.
- best available techniques and emerging techniques identified after considering all the issues concerned

## Participants in the information exchange

Committee of Member States (IED Article 75)

**Members of the committee:**

- vote on the BAT conclusions

IED Article 13 Forum  
(‘Forum’)

**Forum members:**

- Oversee exchange of info.
- Nominate experts to TWG
- Provide opinion on BREFs and work programme

European IPPC Bureau (EIPPCB)

**EIPPCB staff:**

- Steer exchange of info.
- Analyse/validate info. from TWG
- Collection info. (e.g. site visits)
- Propose draft texts for BREF
- Present BREF for Forum opinion

**TWG**

- Industry
- Member States
- NGOs
- Commission

**TWG**

- Industry
- Member States
- NGOs
- Commission

**TWG**

- Industry
- Member States
- NGOs
- Commission

**TWG**

- Industry
- Member States
- NGOs
- Commission

35 Technical Working Groups (TWG)

**TWG members:**

- Collect and exchange info.
- Provide expert opinions
- Contribute to discussions
- Participate in TWG meetings
- Comment on BREF drafts

## Content of BREF documents

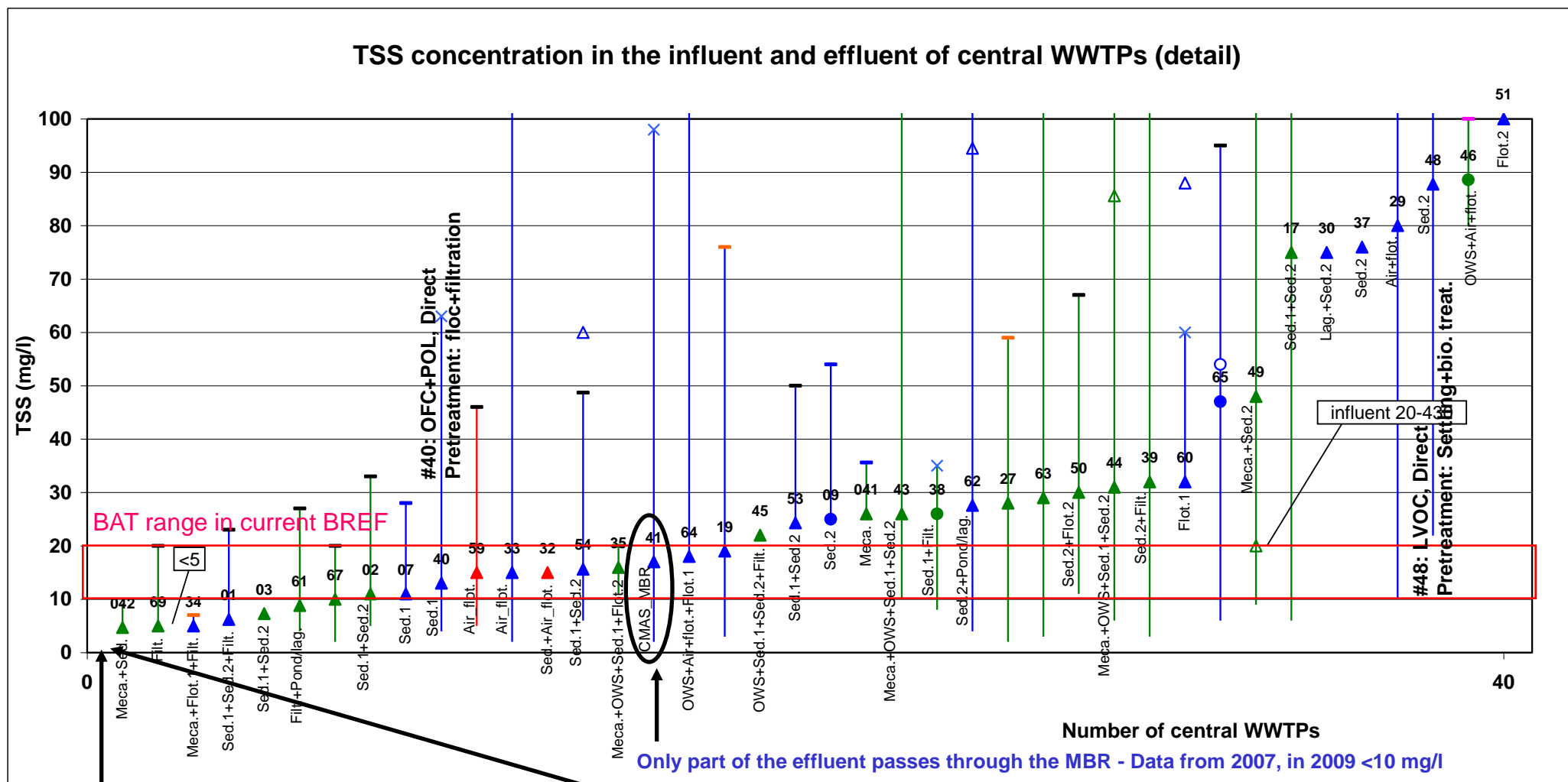
### Standard BREF structure:

- Preface
- General information ..... Chapter 1
- Process/techniques used ..... Chapter 2
- Consumption and emission levels ..... Chapter 3
- Candidate BAT ..... Chapter 4
- BAT conclusions ..... Chapter 5
- Emerging techniques ..... Chapter 6
- Conclusions (suggestions for R&D)



200 to 1000 pages

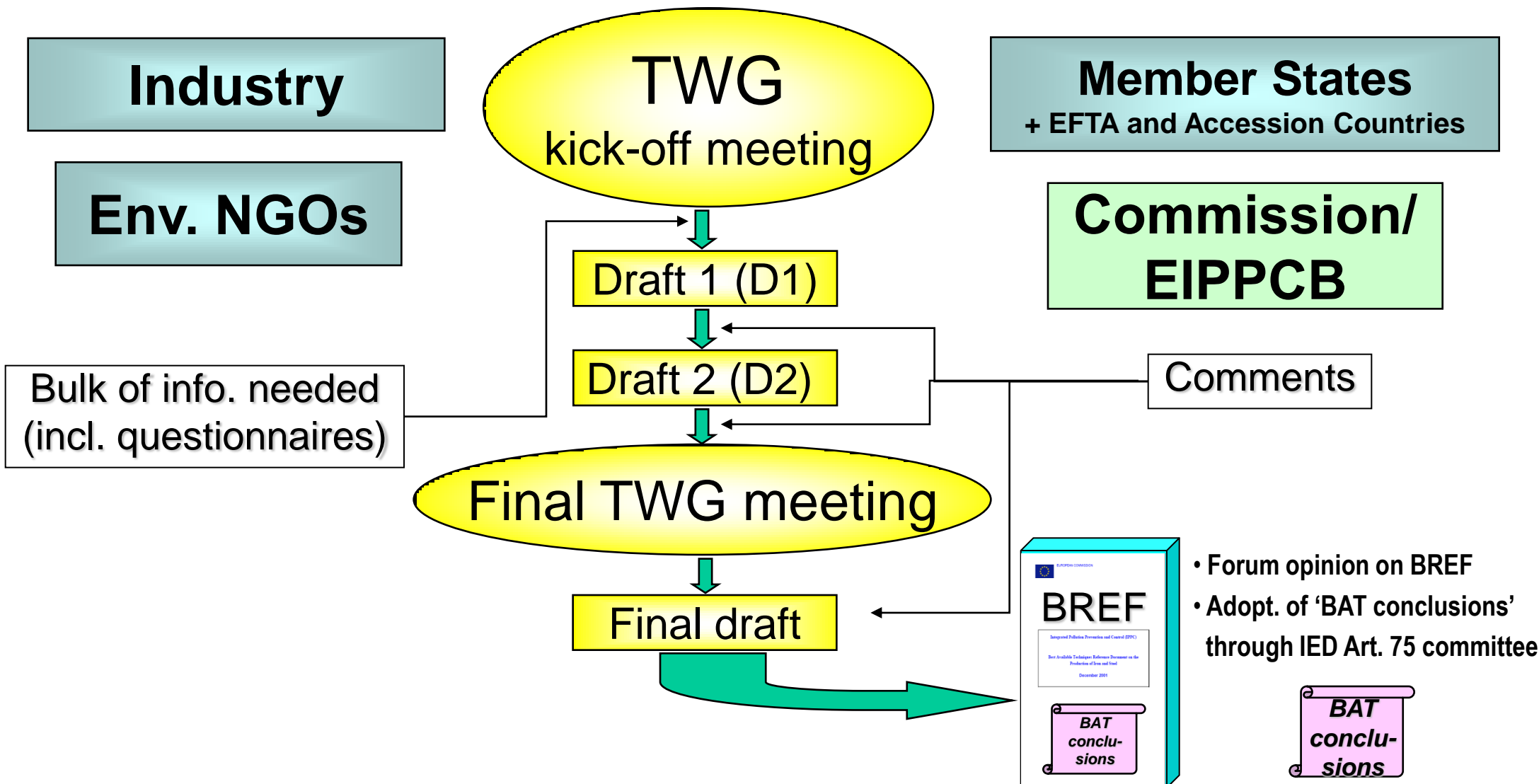
BAT AEL: 10 – 20 mg/l (monthly average)



#36: MBR: <detection limit for TSS

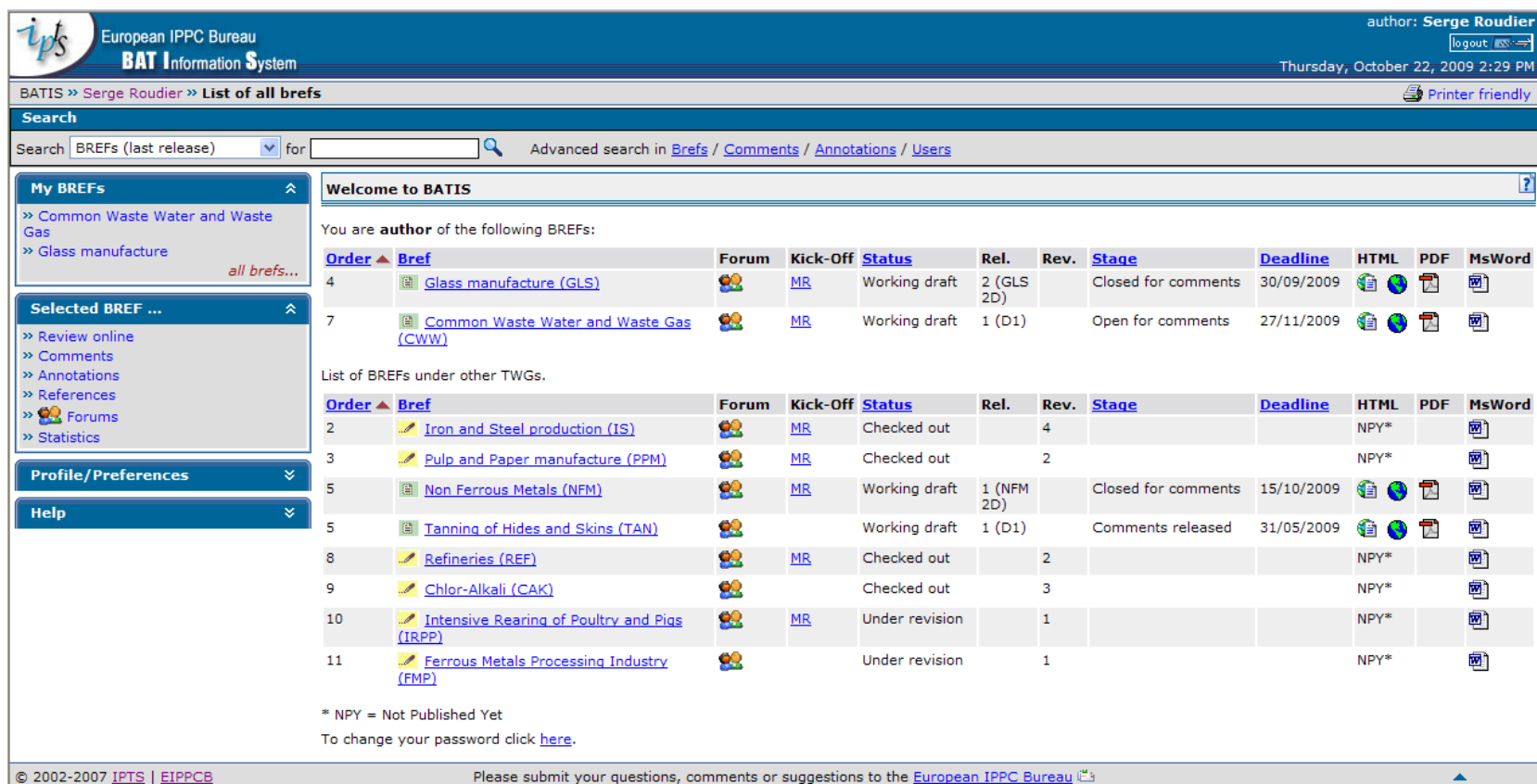
#08: MBR: 1.1 mg/l (average of 150 measurements)

## The ‘Sevilla process’



## Information exchange tool: BATIS

- TWG scattered around Europe => infrequent face-to-face interactions
- Electronic tool: BAT Information System (BATIS)



European IPPC Bureau  
BAT Information System

author: **Serge Roudier**  
logout

Thursday, October 22, 2009 2:29 PM

BATIS >> **Serge Roudier** >> **List of all brefs** [Printer friendly](#)

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Search  for  Advanced search in [Brefs](#) / [Comments](#) / [Annotations](#) / [Users](#)

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 >> Common Waste Water and Waste Gas  
 >> Glass manufacture  
 all brefs...

**Selected BREF ...**  
 >> Review online  
 >> Comments  
 >> Annotations  
 >> References  
 >> Forums  
 >> Statistics

**Profile/Preferences**  
**Help**

**Welcome to BATIS**

You are **author** of the following BREFs:

Order	Bref	Forum	Kick-Off	Status	Rel.	Rev.	Stage	Deadline	HTML	PDF	MsWord
4	<a href="#">Glass manufacture (GLS)</a>		<a href="#">MR</a>	Working draft	2 (GLS 2D)		Closed for comments	30/09/2009			
7	<a href="#">Common Waste Water and Waste Gas (CWW)</a>		<a href="#">MR</a>	Working draft	1 (D1)		Open for comments	27/11/2009			

List of BREFs under other TWGs.



Order	Bref	Forum	Kick-Off	Status	Rel.	Rev.	Stage	Deadline	HTML	PDF	MsWord
2	<a href="#">Iron and Steel production (IS)</a>		<a href="#">MR</a>	Checked out		4			NPY*		
3	<a href="#">Pulp and Paper manufacture (PPM)</a>		<a href="#">MR</a>	Checked out		2			NPY*		
5	<a href="#">Non Ferrous Metals (NFM)</a>		<a href="#">MR</a>	Working draft	1 (NFM 2D)		Closed for comments	15/10/2009			
5	<a href="#">Tanning of Hides and Skins (TAN)</a>			Working draft	1 (D1)		Comments released	31/05/2009			
8	<a href="#">Refineries (REF)</a>		<a href="#">MR</a>	Checked out		2			NPY*		
9	<a href="#">Chlor-Alkali (CAK)</a>			Checked out		3			NPY*		
10	<a href="#">Intensive Rearing of Poultry and Pigs (IRPP)</a>		<a href="#">MR</a>	Under revision		1			NPY*		
11	<a href="#">Ferrous Metals Processing Industry (FMP)</a>			Under revision		1			NPY*		

\* NPY = Not Published Yet  
To change your password click [here](#).

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Reference document	Adopted document	Current draft	Meeting report	Estimated review start
 Cement, Lime and Magnesium Oxide Manufacturing Industries	BREF (05.2010)			
 Ceramic Manufacturing Industry	BREF (08.2007)			
 Chlor-Alkali Manufacturing Industry	BREF (12.2001)		MR (09.2009)	
 Common Waste Water and Waste Gas Treatment/Management Systems in the	BREF (02.2003)	D1 (10.2009)	MR (06.2008)	
 Economics	<a href="http://eippcb.jrc.ec.europa.eu/reference/">http://eippcb.jrc.ec.europa.eu/reference/</a>			
 Emissions from Storage	BREF (07.2006)			
 Energy Efficiency	BREF (02.2009)			
 Ferrous Metals Processing Industry	BREF (12.2001)			2010
 Food, Drink and Milk Industries	BREF (08.2006)			
 General Principles of Monitoring	BREF (07.2003)			2010
 Glass Manufacturing Industry	BREF (12.2001)	D2 (07.2009)	MR (01.2007)	
 Industrial Cooling Systems	BREF (12.2001)			2011
 Intensive Rearing of Poultry and Pigs	BREF (07.2003)		MR (10.2009)	

## **Review of BREFs**

- **First series (33 documents) completed in 2007**
- **Review process started:**
  - *Cement & Lime (2005); Iron & Steel, Pulp and Paper, Glass (2006); Non-Ferrous Metals, Tanneries, Common Waste Water/Waste Gas (2007); Refineries, Intensive Rearing of Poultry and Pigs, Ferrous Metals (2008); Chlor-Alkali (2009); Large Volume Organic Chemicals, Monitoring (2010)*
- **Work program 2011 – 2013:**
  - ~3 – 4 reviews started every year
  - 2011: Large Combustion Plants, Wood-based Panels,
  - 2011-2013: Wood Treatment with Chemicals, Industrial Cooling Systems, Foundries, Slaughterhouses, Textiles, Waste Treatments...

## Industrial Emission Directive (IED) operating scheme

**Prevention and control of  
pollution arising  
from industrial installations**

**Industrial Emissions (integrated pollution  
prevention and control) Directive**

1 legislation

**Application of the best available techniques (BAT)  
described in BAT reference documents (BREFs)**

35 BREFs

**BAT-based permit conditions  
(including Emission Limit Values)**

~50 000 installations

# Thank you for your attention

**European IPPC Bureau**

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