European Union Network for the Implementation and Enforcement of Environmental Law

SUPPORTING IMPLEMENTATION OF THE INDUSTRIAL EMISSIONS DIRECTIVE (2010/75/EU)

Projects in 2018

Date of report: 10 November 2018

Report number: 2018/01

Introduction to IMPEL

The European Union Network for the Implementation and Enforcement of Environmental Law (IMPEL) is an international non-profit association of the environmental authorities of the EU Member States, acceding and candidate countries of the European Union and EEA countries. The association is registered in Belgium and its legal seat is in Brussels, Belgium.

IMPEL was set up in 1992 as an informal Network of European regulators and authorities concerned with the implementation and enforcement of environmental law. The Network's objective is to create the necessary impetus in the European Community to make progress on ensuring a more effective application of environmental legislation. The core of the IMPEL activities concerns awareness raising, capacity building and exchange of information and experiences on implementation, enforcement and international enforcement collaboration as well as promoting and supporting the practicability and enforceability of European environmental legislation.

During the previous years, IMPEL has developed into a considerable, widely known organisation, being mentioned in a number of EU legislative and policy documents, e.g. the 7th Environment Action Programme and the Recommendation on Minimum Criteria for Environmental Inspections.

The expertise and experience of the participants within IMPEL make the network uniquely qualified to work on both technical and regulatory aspects of EU environmental legislation.

Information on the IMPEL Network is also available through its website at: www.impel.eu

Title of the report:	Number report:
SUPPORTING IMPLEMENTATION OF THE INDUSTRIAL EMISSIONS DIRECTIVE (2010/75/EU)	2018/01
Project Manager/Authors: Horst Büther (Project Manager - IED Implementation project) Terence Shears (Author of the report) John Seager (Author of Guidance)	**Report adopted at IMPEL General Assembly Meeting**: *10-12 December 2018, Vienna, Austria* **Total number of pages: 311** Report: 18 Annexes: 293

Executive Summary

The project had five main components:

i. A Project Team meeting in Logroño, Spain, on 14 and 15 March 2018. It was announced that training material would be developed from the guidance as a first step towards fulfilling the requirements of the Commission's Environmental Compliance and Assurance (ECA) Initiative. On Joint Inspections, it was agreed that an effort should be made to go into inspections in more detail. It was agreed to use a questionnaire to identify areas of expertise and areas of need. Work on Tools continued with a view to developing guidance. The sub-group on Horizontal aspects of permitting collected information on the topic within Europe and to identify common practices differences in procedures. The work on Going beyond BAT was completed. The sub-group on BAT (General Binding Rules, Application of BAT in 4 years and Narrative BAT) worked on producing initial findings based on material that already was available. Guiseppe Sgorbati from ARPA Lombardia, Italy, (and Head of the Expert Team on Water and Land) had offered the use of the Italian ISPRA training tool that had been developed which was discussed and would be explored later in the year.

ii. A DTRT and IED Workshop in Lisbon, Portugal, on 15 and 16 May 2018. The purpose of the meeting was to discuss the parts of the Guidance that had still to be developed, to consider what an online version of the Guidance might look like and to examine how IMPEL might organise capacity building and training. For the factsheets, it was agreed to appoint a person to be responsible for each one. There was a presentation on the online version of the Guidance and this was seen as a good solution. Ideas were developed on an IMPEL strategy for capacity building and training.

iii. A Project Team meeting in Edinburgh, Scotland, on 20 and 21 June 2018. The meeting allocated responsibility for factsheets to individuals. There was a presentation on the Scottish approach to Article 15(4) derogations which allows the setting of a less strict Emission Limit Value that exceeds the BAT-AEL range and on the Scottish approach to major accidents to the environment. The sub-group on Industrial Waste Water continued working on their document and proposed that this could be used as a pilot for training and might also be a topic for the IRI. The sub-group on BAT Conclusions explored various interpretation issues which they also looked at in the context of responses to a questionnaire they had circulated. On Horizontal aspects of permitting, the sub-group further developed their report and offered to look at identifying good practice. The sub-group on Training identified that language could be an issue though it was considered to have someone speaking for training on the internet rather than expecting people simply to look at a screen. The Tools sub-group further developed their material and concluded that their report and factsheet should soon be ready for inclusion in the Guidance Book.

iv.

v. A meeting with ISPRA in Rome on 10 September to discuss the training tool they had developed. Giuseppe Sgorbati, Head of the Expert Team on Water and Land, had invited the IED project to consider using this tool. This meeting gave an opportunity to look at the tool in detail. It was impressive and very advanced, possibly too advanced for the purposes of the IED project. The overall conclusion was that it could be possible to use aspects of it for the purposes of IED training.

vi.

vii. A workshop in Eisenstadt, Austria, on 4 and 5 October. The main topic of the workshop was the implementation of new BAT in the cement industry. The conditions that were to be applied to the permitting and inspection cycles e-learning tool on the IMPEL website were defined. The factsheet on Tools was nearly completed and should be ready by the end of the year. The sub-group on BAT was looking at apparently conflicting answers to their questionnaire and would try to identify good practice. The report on Waste Water inspection was now available and a factsheet would be abstracted from it. The sub-group would look further into a training programme on an integrated water approach. The Joint Inspections were, as planned, now looking at content as well as procedures. The questionnaire responses had identified the greatest need for joint inspections in the chemical industry and waste management which was also where the highest level of expertise was available.

viii.

The meetings in Logroño, Edinburgh and Eisenstadt were each preceded by Joint Inspections.

Disclaimer

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Purpose of the project

The IED project is intended to help achieve better implementation of the IED. It has particular regard to permitting, participation of the public, and increasing the efficiency and effectiveness of environmental inspections and surveillance through:

- exchange of IED permit writers and inspectors with a view to assessing, evaluating and mitigating the most serious types of non-compliance with the IED;
- development of good (best) practice examples in the application of BAT conclusions and the inspection and enforcement of permit conditions;
- optimising the communication with and active dissemination to the public of the results of inspection and surveillance work;
- fostering cooperation and coordination between different inspection and surveillance bodies with a view to streamlining and optimising the use of inspection and surveillance resources;
- development of reaction methods after serious environmental complaints;
- creation and use of electronic tools for inspection and surveillance work with a view to support the efficiency and effectiveness of such work;
- presentation and discussion of the IED implementation in permit writing and inspection in the host countries of the project meetings.

The work programme was developed in close cooperation with Industry and Air Expert Team of and IMPEL and members of the European Commission. It took also the results of the IMPEL Implementation Challenge project into account.

Background to the project

Industrial production processes account for a considerable share of the overall pollution in Europe owing to emissions of air pollutants, discharges of waste water and the generation of waste.

The Industrial Emissions Directive 2010/75/EU of the European Parliament and the Council (IED) is the main EU instrument regulating pollutant emissions from industrial installations. The IED was adopted on 24 November 2010 and entered into force on 6 January 2011.

1. The IED aims to achieve a high level of protection of human health and the environment taken as a whole by reducing harmful industrial emissions across the EU, in particular through better application of Best Available Techniques (BAT). Around 50,000 installations undertaking the industrial activities listed in Annex I of the IED are required to operate in accordance with a permit (granted by the authorities in the Member States). This permit should contain conditions set in accordance with the principles and provisions of the IED.

2. The IED allows competent authorities some **flexibility** to set less strict emission limit values. This is possible only in specific cases where an assessment shows that achieving the emission levels associated with BAT described in the BAT conclusions would lead to disproportionately higher costs compared to the environmental benefits due to the geographical location or the local environmental conditions or the technical characteristics of the installation. The competent authority is required to document its justification for granting such derogations.

3. Furthermore, Chapter III of the IED on large combustion plants includes certain flexibility instruments (Transitional National Plan, limited lifetime derogation, etc.).

4. The IED contains mandatory requirements on **environmental inspections**. Member States shall set up a system of environmental inspections and draw up inspection plans accordingly. The IED requires a site visit to take place at least every 1 to 3 years, using risk-based criteria.

5. The IED ensures that the **public has a right to participate** in the decision-making process, and to be informed of its consequences, by having access to permit applications, permits and the results of the monitoring of releases.

An initial IED project was carried out in 2015 and subsequent projects were carried out in 2016 and 2017. This latest project (2018) sought to build on and develop the outcome of the previous project by identifying further areas of the IED where there were challenges for those seeking to implement the directive and by seeking to establish good practice in those areas. This work has been incorporated into a draft guidance book and has been continued into the project in 2018. In cooperation with the IMPEL Doing The Right Things project a web application was developed to show the permitting and inspection cycles on the IMPEL homepage. For all steps of the cycles fact sheets, in depth information and e-learning training material was / will be developed.

Annexes

Annex I

Terms of Reference IED Implementation

TOR Reference No.: 2018-01	Author(s): Horst Buether / Guenter Dussing / Florin Homorean
Version: 1.0	Date: 22 October 2017
TERMS OF REFERENCE FOR WORK UNDER THE AUSPICES OF IMPEL	

1. Work type and title

1.1 Identify which Expert Team this needs to go to for initial consideration	
Industry	☑
Waste and TFS	☐
Water and land	☐
Nature protection	☐
Cross-cutting – tools and approaches -	☐
1.2 Type of work you need funding for	

Exchange visits Peer reviews (e.g. IRI) Conference Development of tools/guidance Comparison studies Assessing legislation (checklist) Other (please describe):	☑ ☑ ☑ ☑ ☑ ☐ ☐

1.3 Full name of work (enough to fully describe what the work area is)
Mutual joint visits of industry inspectors and regulators to achieve a level playing field implementation of the IED and workshop on the use of BAT-conclusions in the cement production industry 2018
1.4 Abbreviated name of work or project
Supporting IED Implementation and BAT-conclusions 2018

2. Outline business case (why this piece of work?)

2.1 Name the legislative driver(s) where they exist (name the Directive, Regulation, etc.)	
Industrial Emissions Directive (IED) BAT Reference Documents and BAT Conclusions BAT Conclusions: production of cement, lime and magnesium oxide (BAT-C CLM) Air Quality Directive Seveso III Directive	
2.2 Link to IMPEL MASP priority work areas	
1. Assist members to implement new legislation	☑
2. Build capacity in member organisations through the IMPEL Review Initiatives	☑
3. Work on 'problem areas' of implementation identified by IMPEL and the European Commission	☑
2.3 Why is this work needed? (Background, motivations, aims, etc.)	
Industrial production processes account for a considerable share of the overall pollution in Europe due to their emissions of air pollutants, discharges of waste water and the generation of waste. The Industrial Emissions Directive 2010/75/EU of the European Parliament and the Council (IED) is the main EU instrument regulating emissions from industrial installations. The IED aims to achieve a high level of protection of human health and the environment taken as a whole by reducing harmful industrial emissions across the EU, in particular through better application of Best Available Techniques (BAT). Around 50,000 installations undertaking industrial activities listed in Annex I of the IED are required to operate in accordance with a permit (granted by the authorities in the Member States). This permit should contain conditions set in accordance with the principles and	

provisions of the IED. The 2014/2015 Implementation Challenge project of IMPEL, the Industry and Air Expert Team, and consultations with the European Commission identified a lot of unresolved problems in the implementation of industrial regulation.

COMMISSION IMPLEMENTING DECISION of 26 March 2013 establishing the best available techniques (BAT) conclusions under Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions for the production of cement, lime and magnesium oxide. These conclusions shall be used as an example for the implementation of new BAT and discussed in a workshop. Goal of workshop: experiences & best practice examples (procedures, preparation) for updating permits, new trends in cement & clinker manufacturing, emission trends, use of waste (as a substitute for conventional fuels and as secondary raw material).

The European Committee of the Regions (CoR) – in the draft opinion on Environmental Implementation Reviews (EIR):
19. … stresses the need to incorporate the implementation of the Industrial Emissions Directive into the next round of the Review. **In this respect, the IMPEL network should have a more prominent role in the process in order to support the collection of good practices for 2019**.

2018 is the fourth year in a row of the IMPEL IED Implementation project. It has become a very successful IMPEL activity attracting a lot of environmental officers from numerous European countries. In the last years, IMPEL has had to raise the budget of the project in order to accommodate this increased interest. This is a clear indicator that there is need for exchange on IED topics between the European competent authorities with responsibility for IED implementation. The IED Implementation project has established itself meanwhile as one of the main long running activities of the IMPEL network.

One of the highlights of the last years activities are the joint inspections under the IED Implementation project. Meanwhile there were joint inspections of installations falling under: steel production, refining of crude oil, waste processing, energy production, aluminium production, rearing of pigs, animal feed production and chemical industry. During these inspections inspectors from the host country are joined by inspectors from IMPEL member countries to exchange expert views and learn from each other. The results are compiled and used to improve the inspections. There is always more interest from inspectors to join than places for participation. So, at the last meeting of the project in 2017 in Portugal there were 3 joint inspections in parallel.

In the last three years, the project team has developed a lot of good practice examples that were put into a specially designed guidance book. This book not only contains guidance from the running project but also from previous and related IMPEL projects dealing with issues of industrial regulation. The IED project itself developed in sub-groups good practice examples for the following topics:

- Translation of BAT Associated Emission Levels (AELs) into Emission Limit Values
- Levels of non-compliance; publication of inspection reports
- Bankruptcy and temporary or definitive cessation of activity in IED installations
- Self-monitoring and reporting obligations of the operators
- Tools for regulating IED installations
- Joint inspections
- Definitions [in legislation]
- Horizontal aspects of permitting
- Minimum content of IED inspections
- Feedback from the inspector in the BREF-cycle
- How to check industrial waste water BAT
- Going beyond BAT (application of Article 18).

There are also a lot of other issues that shall be developed to good practice during the 2018 project and in the future (see 2.4).

In 2017 the IED Implementation project had a common project meeting and a common workshop with the IMPEL project "Doing the right things (DTRT) in the permitting process". During these meetings it was decided to join the forces and develop common guidance based on the permitting cycle and the inspection cycle of DTRT. The IED Implementation project will deliver fact sheets for the different steps of the regulatory cycles. As a result, internet based guidance for industrial permitting and inspection will be created that shall be used as basic concept for the IRI's and as training material for competent authorities. Both projects already started with the preparation.

2.4 Desired outcome of the work (what do you want to achieve? What will be better /

done differently as a result of this project?)
A general goal of the project is to establish the project team as a core group of the Industry and Air Expert Team and a sustainable cooperation of European enforcement authorities. This includes: improvement of the IED implementation in Europe; raising the percentage of BAT application through common understanding and expert exchange, fast exchange of solutions concerning implementation problems; facilitating implementation; joint inspections; web applications and tools; invited speakers of related projects and activities outside IMPEL; feedback to the COM on implementation of the IED; new ways of identifying implementation gaps. A lot of these general goals have already been achieved, e. g. a vivid exchange of problems and solutions via Basecamp, discussions with stakeholders of related projects, of the Seveso Expert Group, of the Joint Research Centre (BAT), and the Commission. In the last three years the common understanding of problems and solutions within the project group has grown intensely. Now is the time to spread the word and start preparing training material for competent authorities. A first training session will already start in 2018 and shall be organised like the IRAM trainings which had been carried out several times per year since 2012 in IMPEL member countries. A lot of good practice has already been developed by the projects in the last years and put into the guidance book on IED implementation. There are still a lot of issues identified by the Implementation Challenge project, IMPEL member countries, the European Commission, and the project and workshop participants. The identified topics for further developing good practice are: • Emission limit values (ELVs) – ambient air quality • Implementation of new BREFs • Application of BAT within 4 years after publication of BAT conclusions (timetable) • Making changes to permits – what is a significant change • Streamlining IED and EIA permits • Integrated permits (one stop shop) How to deal with other than normal operating conditions • Concentration vs. mass emission limits • Control of installations dealing with VOC and falling under the IED

- Non-routine inspections
- Charging regimes
- Public participation.

At every project meeting and during the workshop the IED implementation of the host country/authority is presented and discussed by the project members. This gives a fast and good overview on the approaches in different European countries and is a good addition to the IMPEL IRIs.

A special highlight of the 2018 workshop will be the implementation of the use of BAT-conclusions in the cement production industry with exchange of experience in the following fields:

- Definition of installation (boundaries of an installation) in cement production;

- Permitting of existing Installations / Reconsideration and updating of permit conditions;

- Permitting of new Installations;

- Use of BAT;

- IED Baseline Report;

- Environmental Inspections;

- Use of BAT in permitting and inspection.

2.5 Does this project link to any previous or current IMPEL projects? (state which projects and how they are related)

Projects dealing with the IED in a broader sense but also the IRIs and the DTRT and easyTools projects are linked to this activity. The results and good practices of former projects dealing with industrial issues are already included in the IED Implementation Guidance Book. The project managers of related projects were invited to meetings of the IED Implementation project to give a presentation and discuss how their results could be included into the guidance.

These projects are:

- Derogations from BAT in IED permits
- IED baseline report on soil and ground water contamination
- IED and Habitat Directive
- Doing the right things in (IED) the permitting process
- IPPC and Water Framework Directive
- Air quality and industrial emissions
- The transition to IED permits and how to deal with substantial change at a permitted facility
- Implementation and use of BREFs
- INSPECT-CEM – Environmental Inspection Guidelines for the Cement Clinker Industry
- Environmental inspections of industrial installations in accordance with the Industrial Emissions Directive (IED)

In addition, a representative of the Technical Working Group on Inspections of the Seveso Expert Group was also invited to exchange the experiences of these related approaches.

3. Structure of the proposed activity

3.1 Describe the activities of the proposal (what are you going to do and how?)
In 2018 there will be three project meetings, one workshop and three joint inspections with site visits of one or more installations each. One of the project meetings will be used to prepare the workshop with special emphasis on BAT implementation in the cement industry. During the project meetings and the workshop, the host countries will give a presentation of the IED implementation in their countries. Guidance and best practice examples that have already been developed in the first years of the project and from other projects will be put into a form that is useful for the guidance book. Based on this fact sheets will be developed for the internet guidance and the training material together with the DTRT project. Priority topics from the issues described in 2.4 will be chosen by the project group for the

development of solutions and guidance by sub-groups of the project. These topics will also be discussed and developed further during the workshop of the project together with BAT conclusions for the cement industry. Coming from that further guidance will be prepared as described above.

A package of training material will be compiled and put on the internet for direct use of competent authorities. A first face to face training will also already start in 2018. The joint inspections shall be developed further to put them on a more formal basis like the "Exchange of Inspectors Programme in the areas of REACH and CLP" of the European Commission.

Project managers of related projects will also be invited to the workshop to present and discuss the results of their projects. In addition, members of the Commission will also be invited to discuss the results of the projects and priority topics of further investigations.

3.2 Describe the products of the proposal (what are you going to produce in terms of output / outcome?)

Outputs:

- Technical advice for problems related to the IED implementation and good practice examples
- Guidance for (joint) inspections of industrial installations
- Training material for Competent Authorities based on guidance on the internet
- IMPEL member examples for IED implementation
- Inclusion of the results of related projects
- Inspection tools
- Results from a technical workshop on implementation of IED and BAT
- Examples for BAT implementation by IMPEL members

Outcome:

- Laid foundations to start with trainings of Competent Authorities in the IED implementation
- Well organised joint industrial inspections on a formal basis
- Reduction of the IED implementation gap and achievement of a level playing field within IMPEL member countries (see also 2.4)

3.3 Describe the milestones of this proposal (how will you know if you are on track to complete the work on time?)
• Development of the work program 2018 together with DTRT: January/February 2018 • Work of the sub-groups on not yet finished topics of the 2017 project: Jan/Feb 2018 • January/February 2018: sub-project team meeting to develop a questionnaire on BAT implementation in the cement industry • Finalising the work program at the project group meeting: March 2018 • Decision on the development of the internet guidance and training material: March 2018 • Joint inspection: back to back with the project group meetings and the workshop • Development of a formal joint inspection program: starting in March 2018 • Work of the sub-groups on new topics of the 2018 project: April/May 2018 • New project groups on further topics at the second project group meeting: June 2018 • Preparation of the workshop at the second project group meeting: June 2018 • Workshop: country approach / good practices / cement industry: September 2018 • Development of guidance and good practice examples: until October 2018 • First training session on IED implementation: October 2018 • Autumn 2018: presentation of the results of the WS and the report at the ET meeting • November/December 2018: adoption of the final report by the General Assembly
3.4 Risks (what are the potential risks for this project and what actions will be put in place to mitigate these?)
The first risk is that only a few countries collaborate within this activity. The new IMPEL strategic approach for actively encourage and support passive members was used to mitigate this risk. The big interest in the project in the last years shows that this is no real risk. The second risk is that outputs of the project are only recognized by a small group of active project members. The new approach to develop internet guidance and training material together with the DTRT project and the intention to start with trainings in 2018 will help to make the project a success. In addition the new strategic IMPEL approach on communication of IMPEL results shall also be used to mitigate this risk (see item 8).

4. Organisation of the work

4.1 Lead (who will lead the work: name, organisation and country) – this must be confirmed prior to submission of the TOR to the General Assembly)	
Horst Büther, Regional Government Cologne, Germany, Florin Homorean, National Environmental Guard, Romania, Cement-BAT: Guenter Dussing/Robert Gross, Land Salzburg, Austria	
4.2 Project team (who will take part: name, organisation and country)	
Austria	Robert Gross, robert.gross@salzburg.gv.at
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UK	Jamie McGeachy, jamie.mcgeachy@sepa.org.uk
NN	to be proposed by the National Coordinators

BAT-Conclusion in the cement industry:

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María Valero Gil maria.valero.gil@xunta.gal

4.3 Other IMPEL participants (name, organisation and country)
Further environmental officers of different national competent IED authorities to participate in the technical workshop and the conference, especially members of the Industry Expert Team and regulators dealing with cement industry. Invited speaker of related projects at the workshop.

4.4. Other non-IMPEL participants (name, organisation and country)
Close contact with desk officers of the EU Commission dealing with industrial environmental law

5. High level budget projection of the proposal. In case this is a multi-year project, identify future requirements as much as possible

	Year 1 (exact)	Year 2	Year 3	Year 4
How much money do you require from IMPEL?	62,880 €	ditto	ditto	ditto
How much money is to be co-financed	15,000 €	ditto	ditto	ditto
Total budget	77,880 €	ditto	ditto	ditto

6. Detailed event costs of the work for year 1

	Travel € (max €360 per return journey)	**Hotel €** (max €90 per night)	**Catering €** (max €25 per day)	**Total costs €**
Event 1 *<Sub-project group meeting>* *<January/February 2018>* *<tbd>* *<8>* *<…>*	1,000 € (5 travelling participants, thereof 2 not from Austria)	900 € (5 travelling participants, thereof 2 not from Austria)	400 €	2,300 €
Event 2 *<Project group meeting>* *<March 2018>* *<tbd>*	9,000 € (25 travelling participants)	4,500 € (for 25 participants)	1,300 € (for 26 participants)	14,800 €

<25> *<2/2>*				
<u>Event 3</u> *< Project group meeting >* *<June 2018>* *<tbd>* *<25>* *<2/2>*	9,000 € (25 travelling participants)	4,500 € (for 25 participants)	1,300 € (for 26 participants)	14,800 €
<u>Event 4</u> *< Conference/workshop >* *<September 2018>* *<tbd>* *<38>* *<3/3>*	13,680 € (38 travelling participants including invited speakers)	10,260 € (for 38 participants)	2,925 € (for 39 participants)	26,865 €
<u>Event 5</u> *<Joint inspections>* *<March, June, September 2017>*	0 € (back to back with events 1, 2 and 3)	1,080€ (for 4 participants each time)	525 € (for 7 participants each time)	1,605 €

<tbd->				
<4 each>				
<1/1>				
Event 5	1,080 € (3 travelling trainers)	540 € (for 3 trainers)	150 € (for 3 trainers)	1,770 €
<IED Training session>				
<October 2017>				
<tbd->				
<3>				
<2/2>				
Total costs for all events	33,760 €	21,780 €	6,600 €	62,140 €

7. Detailed other costs of the work for year 1

7.1 Are you using a consultant?	☑ Yes ☐ No
7.2 What are the total costs for the consultant?	IED: 15,000 € BAT: to be decided

7.3 Who is paying for the consultant?	IED: Germany (if budget will be confirmed) BAT: Austria
7.4. What will the consultant do?	Organising the meetings, supporting the working groups, transformation of the project outputs into a format that can be used by all competent IED authorities and preparation of material that can be used for IMPEL communication purposes.
7.5 Are there any additional costs?	☑ Yes ☐ No Namely: Transport of inspectors, web based tools
7.6 What are the additional costs for?	1. Transport of inspectors to industry sites during the joint inspections 2. Development of web based tools for inspections
7.7 Who is paying for the additional costs?	1. IMPEL: 740 € 2. Done by DTRT
7.8. Are you seeking other funding sources?	☐ Yes ☑ No
7.9 Do you need budget for communications around the project? If so, describe what type of activities and the related costs	☐ Yes ☑ No

8. Communication and follow-up (checklist)

	What		By when
8.1 Indicate which communication materials will be developed throughout the project and when ***(all to be sent to the communications officer at the IMPEL secretariat)***	TOR ✓ *	☑	October 2017
	Interim report ✓ *	☑	June 2018
	Project report ✓ *	☑	October 2018
	Progress report(s) ✓	☑	March/June/Sept. 2018
	Press releases	☑	Workshop
	News items for the website ✓ *	☑	June 2018
	News items for the e-newsletter	☑	After 1st meeting
	Project abstract ✓ *	☑	After 3rd meeting
	IMPEL at a Glance ✓	☑	October 2018
	Other, (give details): PPP for project presentation	☑	After 1st meeting
8.2 Milestones / Scheduled meetings (for the website diary)	Questionnaire in March 2018		

8.3 Images for the IMPEL image bank	☑ Yes ☐ No
8.4 Indicate which materials will be translated and into which languages	Project abstract / IMPEL at a glance: languages of the participating countries of the technical workshop
8.5 Indicate if web-based tools will be developed and if hosting by IMPEL is required	This will be done by the DTRT project
8.6 Identify which groups/institutions will be targeted and how	The main target group consists of competent authorities for IED implementation and Industry and Air Experts. They will be targeted by the means under 8.1 and by discussion at other IMPEL events.
8.7 Identify parallel developments / events by other organisations, where the project can be promoted	CCA TG 2 meetings, IRIs, meetings with COM, TFS technical workshops, national IMPEL meetings, international conferences, TAIEX workshops, Twinning projects

✓ *) Templates are available and should be used. *) Obligatory*

9. Remarks

Is there anything else you would like to add to the Terms of Reference that has not been covered above?

In case of doubts or questions please contact the IMPEL Secretariat.

Draft and final versions need to be sent to the IMPEL Secretariat in word format, not in PDF.

Thank you.

Annex II

Note of IED Implementation Project Team Meeting, Logroño, 14-15 March 2018

Summary of action points from the meeting

1.	Chrystalla would send the draft report on Horizontal Aspects in Permitting to Rob Kramers, DTRT, in case they wanted to comment
2.	Horst would contact Romano about BAT in Industrial Waste Water which could be the starting point for training
3.	Jamie would ensure that the report on Going Beyond BAT was forwarded to Rob Kramers, DTRT
4.	Marinus would explore with Horst the possibility of additional funding being made available for Joint Inspections
5.	Antonio and Ruth to consult colleagues in their respective countries to define their training needs
6.	Horst would review the project abstract and then members of the project

	team would be asked to translate the revised version into their own languages

Welcome and opening of the meeting

Mr. José Maria Infante Olarte, Director General de Calidad Ambiental y Agua (Director General for Environmental Quality and Water), welcomed those present to Logroño and to the meeting.

He began by saying that it was an honour and a pleasure for him to be with those responsible for working to protect and improve the environment in many different European countries. La Rioja was the smallest of the Spanish regions and relied on support and guidance from other regions and countries to help. The region was therefore very supportive of IMPEL and the work it was doing.

He appreciated that the project on IED implementation would require much work from the group but hoped that there would still be an opportunity to appreciate the region and to sample its famous wine and its culture. He hoped that everybody would feel at home and said that the home team would be happy to help in any way necessary.

Horst thanked the Director General and those responsible for organising the meeting. He thanked those present for their attendance and in particular those who had travelled to Logroño on their own budgets since the number of people attending was greater than the budget available could pay for.

There was a tour de table to enable the participants to introduce themselves. The agenda was agreed and adopted.

1. Background and progress of the IED Implementation project

Horst explained that the aim of the project was to achieve a level playing field for the implementation of IED implementation. It would do this through identifying where there were gaps in the implementation of IED, learning from other countries and mitigating non-compliance with IED. It would seek to ensure that BAT conclusions were applied and that Good Practice examples were identified. There should be a common understanding of inspections and inspection tools would be developed. There would be an appropriate level of public participation.

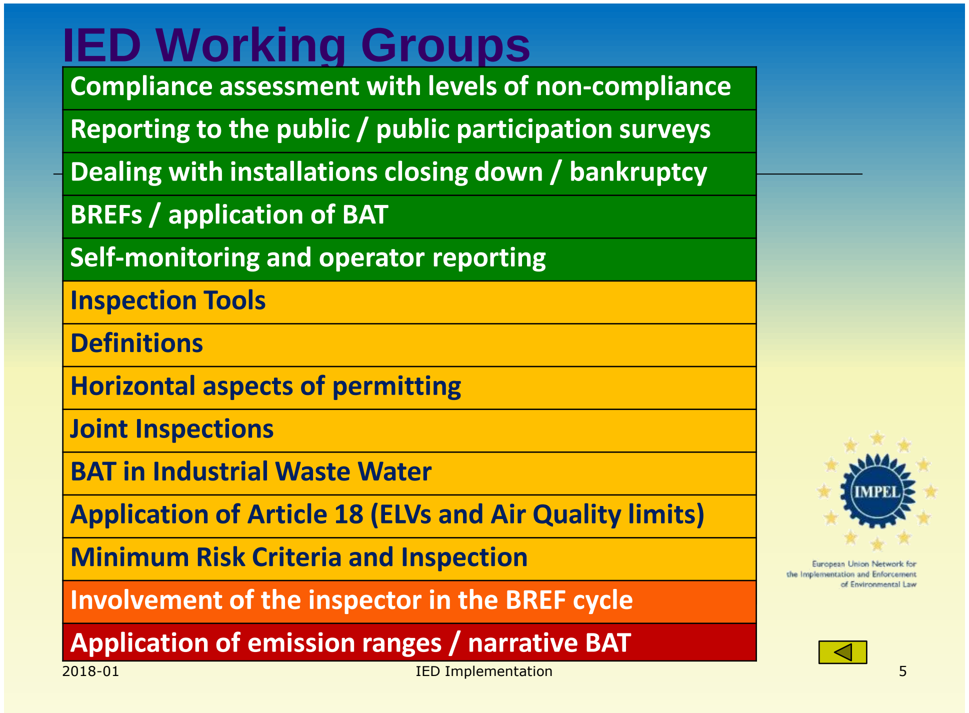
In 2015 and 2016 there had been detailed presentations on the approaches to IED implementation in Bremen, Wallonia, Romania, The Netherlands and Flanders. Implementation challenges had been identified and thematic working groups had been set up. Final results had been received from five working groups and there was ongoing work together with the formation of new groups. There had been site visits in Bremen, Rotterdam and Ghent. A Guidance Book on IED Implementation had been drawn up which included the results of related IMPEL projects. Project abstracts had been produced in different languages and there had been an exchange of experience.

In the Work Programme for 2017 there had been presentations of Country approaches on IED implementation in Lombardy, Slovenia and Portugal. There had been joint inspections of a Power Plant in Lombardy, an Aluminium foundry in Slovenia and in Portugal of the Rearing of Pigs, Milling and the Chemical Industry. Thematic working groups had continued and the IED Guidance had been amended following collaboration with DTRT Permitting. As a result, Fact sheets for permitting and inspection cycles had been produced.

The workshop in 2017 had been held jointly with DTRT Permitting. The topics had included

- **IED** - Definitions; MJV; Other than Normal Operating Conditions; Compliance Assurance
- **DTRT** – Priorities; Strategies; Permitting Procedure; Evaluation and Feedback
- **MIW (Make it Work)** – Eco-Innovation

This slide shows progress with the IED Working Groups. Those in green are completed while those in yellow are still under way.



In the IED work programme for 2018 there will be work on a formal Exchange of Inspectors program. Working groups will continue with ongoing and new topics and there will be further cooperation with DTRT on the Guidance Book. Training material will be developed from the guidance and training will take place as a first step towards fulfilling the requirements of the Commission's Environmental Compliance and Assurance (ECA) initiative.

For 2018, the proposal for milestones and budget had been that there would be two project meetings, each with 25 participants, and a workshop with 30 participants. Three joint inspections would be undertaken, each with 4 participants and a training session would take place with 3 trainers. The budget for this was 55,000 €. There would be 22 days of consultant time which would be funded from a separate budget. In fact, it had been agreed that the project would be combined with one on cement. The cement project would have a meeting with 8 participants and the two project meetings for IED would remain at 25 participants. The workshop would be expanded to 38 participants and the budget would be 62,880 €.

The open IED topics were:

- Inspectors' input into the BREF-cycle
- BAT / general binding rules
- Application of Emissions Ranges
- Concentrations versus mass emission limits
- Changes of permits – what is a significant change
- Application of BAT within 4 years
- Streamlining IED and EIA permits
- Integrated permits (one stop shop)
- Control of VOC installations under IED
- Industrial soil and groundwater monitoring
- Non-routine inspections
- Public participation / complaints management
- Charging Regimes
- IED farming activities (2019)

Portugal wanted to work on IED farming activities in 2019. It would be necessary to set priorities for the work, including the development of training material.

2. Spain – system of IED Implementation (La Rioja)

María Jesús said that in her presentation she would look at the following: Environmental Inspection; REDIA; La Rioja Inspection Program; Conclusions; Good Practices.

The EU framework for environmental inspections included the Landfill Directive, the Recommendation on Minimum Criteria for Environmental Inspections, the regulation on Transfrontier Shipments of Waste and the IED. In Spain there were 6,000 IED sites out of 50,000 across Europe. There were three levels of competent authorities in Spain. The Ministry was responsible for the transposition of Directives, water discharges to rivers, authorisation and inspection of transboundary shipments, including non-EU countries. Counties looked after planning, programming and inspection of IED establishments and air emissions, soil pollution and waste and water discharges to domestic rivers. Municipalities, directly or by Consortiums, had responsibility for water discharges from waste water pipes to waste water treatment plants and for noise.

REDIA is the Spanish Environmental Inspection Network based on the saying that if there is a will, there is a way. The first meeting was in Galicia in 2008 and the rules were approved in Merida in 2010. It is an instrument for cooperation and sharing experiences and provides a meeting point and permanent forum for dialogue to exchange knowledge in relation to environmental inspection (email group, intranet web page) and cooperation and institutional coordination among the responsible persons for the environmental inspection: State and Counties (CCAA). It is a formal network open to other stakeholders and has a Secretariat, Plenary and executive Committee. There is one vote per member. Members are the responsible persons for environmental inspection, appointed by the environmental authority and one member representing the Environmental Ministry. Their last running project was a checklist on non-compliances in environmental inspections.

For the Inspection Program in La Rioja there are 55 IED sites. The population is 300,000 and the area of La Rioja is 5,050 km^2 (compared to Spain which has a population of 46 million and an area of 505,000 km^2 and 6,274 IED sites). The total number of IED sites in Europe is 55,000. The inspection frequency for the 55 IED sites in La Rioja is that 8 are visited yearly, 15 every two years and 32 every three years. 25 of the sites are poultry and pigs, 3 are food processing, 4 are landfills, 3 are waste treatment, 4 are bricks, 13 are industry and 3 are energy. The competent authorities for air emissions, soil pollution and waste are the counties and for waste water the competent authorities are the Ministry, counties and municipalities.

The current Inspection Program for La Rioja runs from 2013 to 2018. In 2018 there are planned to be 28 inspections and there will be 7 inspectors (part job time). Minutes are written for each inspection and are signed by the inspector and usually by the operator. Where non-compliance is identified it is included in the minutes. Ultimately, if the non-compliance is not resolved it is treated in a more formal way which can lead to the courts. The operator is asked for extra information. A copy is given to the operator when the inspection is completed. The report is sent to the operator and is available to the public on the web page.

In order of pollution (from the least to the highest) the industries are: rearing poultry and pigs; other industries (bricks, food processing); energy; industry (with chemicals); landfills; waste treatment plants.

Inspection time is almost the same for all activities. Inspection frequency changes more because of the operator behaviour than for the emission values. According to general inspection rules, with the same number of inspectors, it would be better to increase inspection frequency on chemical industries and waste treatment plants and landfills, and decrease frequency for poultry and pigs (once every six years)

The strength of the system is that, after 5 years, activities regularly inspected have improved. Each facility in Spain has one ID Number. The weakness is that in La Rioja there are seven part-time inspectors.

The good practices are that the first inspection is carried out during the next year after the industry starts its activity. The permit writer goes too which allows them to check the permit conditions and the improvement of permits. Inspection frequency is established according to the kind of installation and the operator behaviour. Inspectors should inspect different activities, not always the same activity and the same inspector team.

The permits are easy to check, with a schedule and flow-charts.

3. Topics of the meeting and planning of the year

3.1 Merger with the project on BAT in the cement industry

It had been agreed that the project on BAT in the cement industry would become part of IED Implementation. There would be a workshop in Vienna on 4 and 5 October and the topics to be discussed would be considered at the next meeting.

3.2 Environmental Compliance Assurance initiative of the Commission

The intention here on the part of the Commission was to bring together a group of experts on environmental compliance and governance. The overall aim was to achieve better compliance with EU environmental law in Member States. In particular, they wanted to work with networks, including IMPEL: Chris Dijkens, IMPEL's Chair, was a member of the group.

There were nine actions in total, many of which had direct relevance for IMPEL.

The first was to Improve deployment of environmental compliance assurance expertise across the EU by means of peer reviews, joint enforcement actions, compliance assurance visits and use of the TAIEX-EIR Peer2Peer tools. The Commission wanted to strengthen IRIs and do more of them and not only covering industry while giving prosecutors an opportunity of being involved in them. They also wanted to strengthen joint enforcement actions, for example on waste. Joint inspections would also have an important role and IMPEL should ask for more support from the Commission. The TAIEX-EIR Peer2Peer tool could be useful for this and as a method for funding trainers.

The second concerned the identification of professional skill-sets and training needs for environmental inspectors. The IED project could make an input into this but, as at present, it was unclear whether the Commission or IMPEL was leading on it.   Some fifteen years ago IMPEL had prepared a report on professional skill sets and training needs for inspectors and it could be useful to build on the work that had been done then.

The Commission wanted IMPEL to carry out a mapping exercise of qualifications needed by inspectors, which was closely related to training. There was also the question of the transfer of experience from older inspectors to younger inspectors.

ISPRA in Italy had prepared a training tool which had been offered by Giuseppe to IMPEL for testing (in English). This could be used as a tool for developing training materials.

The third was about facilitating the sharing of good practices. This would need databases which the Commission would develop with input from IMPEL.

Details of all the actions can be found on the Commission Staff Working Document, Environmental Compliance Assurance – scope, concept and need for EU actions. *SWD(2018) 10 final, Brussels, 18.1.2018.*

3.3 Further cooperation with DTRT and combined workshop

There would be three IED Implementation meetings this year of which two would be held jointly with DTRT. The joint meeting in June would be in the week of 18-23 June and Jamie had offered to host it in Scotland. It would either be in Edinburgh (subject to the availability of the meeting room) or Stirling. It was quite easy to reach Stirling by train from both Edinburgh and Glasgow. The next meeting, the workshop in Austria, would also be held jointly with DTRT.

3.4 IMPEL Conference

The IMPEL Conference was due to be held on 24-28 September and input would be required from the IED project on Joint Inspections and Training.

4. Status of the working groups and activities

4.1 Joint Inspections

The 9th Joint Inspection had been carried out and had been well organised by Maria Jesús. The next step would be to see whether it would be possible to include more depth in the inspections in terms of content. The group would need to look at how to do that. If content were to be the focus, it would be useful to look at identical sectors which, of course, volunteers would be needed to host.

One possibility would be to choose sectors in line with the Bref cycle which might also increase the chance of receiving additional funding from the Commission. The group could circulate a questionnaire to identify areas of expertise and areas of need. Meetings would need to be in areas with relevant industries for joint inspections.

4.2 Definitions

With Pieter's departure from the project, work on this topic had ceased for the time being.

4.3 Tools

The focus had been on finalising the questionnaire to identify helpful tools. The guidance had been developed further. The results would need to be adapted which would require further discussions within the group. Horst said that it would be necessary to make available the results that had already been produced.

4.4 Horizontal aspects of permitting

Those involved in the topic on Horizontal Aspects of Permitting were Chrystalla Stylianou (CY), Nathalie Ellul (MT), Simon Farrugia (MT), Deniss Pavlovs (LT) and Elisabete Dias Ramos (PT).

The definition of horizontal aspects is the obligations of the operator that apply to all installations. Horizontal aspects include the following: Environmental inspections; Contact person; Process modification/extension; Consumption of raw materials, water and energy; Maintenance of equipment; Noise and odour; Staff competency and training; Prevention and management of accidents; Environmental Management System (EMS); Energy Efficiency; Site closure; Reports; and Communication.

The goals of the group were to collect information on horizontal aspects in permitting within Europe. They sought to identify common practices and differences in procedures and obligations of the operators among Members and to disseminate the information and improve the way horizontal aspects are regulated and the IED Permits.

Fifteen members answered the preliminary questions. Half of the competent authorities for issuing IED permits are at national level, and the same percentage of competent authorities are responsible for both issuing permits and enforcing the IED inspections. The majority have established General Binding Rules (GBRs) or a legal framework for horizontal issues to simplify IED permitting. Even then, in most cases, they are incorporated as general conditions in the permit. The IED permit covers all activities on the site for the majority of responses.

Most of the members have no time limit on the validity of the permit, a few have 5 years, and some have a duration of 10-15 years depending on the installation.

On the technical questions, a total of 26 members responded to the questionnaire. The questions here concerned: Compliance Assurance (inspections, records, competent person, communication); Management Issues (EMS, Prevention and management of accidents, maintenance, staff training); Changes (Process modifications, Site Closure); Specific Aspects (energy, water, raw materials, noise, odour).

For compliance assurance, carrying out inspections and generally verifying compliance assurance is set in the legislature and /or in GBR but some aspects are adopted via permit conditions. In the majority, the designation of a contact person by the operator is a legal requirement or is a permit condition and it is provided via the application for a permit or later. In all cases there is an obligation for reporting and this is mainly set in the permit. Permit conditions specify the relevant reports, frequency, content, form of reports. Only a few employ GBR to set reporting obligations. Serious incidents and accidents must be communicated. This obligation is in almost all cases set as a permit condition.

On management issues, for EMS, the majority adopt relevant terms in the permit while others do it through a legal framework and only two via GBR. In most cases EMS is voluntary and provides reduction in fees or frequency of inspection and for a few it is a prerequisite to permit. Only three require an accredited system. Most EMS include Accident Prevention and Control which includes specific emergency techniques, employees' training, record keeping, etc. In most cases, general provisions in legislature and specifics are adopted in the permit and three by adopting GBR. Maintaining Prevention and Accident Management Systems apply usually for Seveso sites and high-risk sites.

For modifications and site closure, some members require pre-approval whereas some require only notification: for some what is required depends on the type or extent of the modifications and some require re-submission of application or permit modification. What applies in each case is set either in legislature or as conditions in permit.   Site closure is regulated mostly through permit conditions as well as in legislature and only two use GBRs. The operator in almost all cases must evaluate the state of the soil and ground water and in all cases is required to return it to the baseline state. A decommissioning plan is usually requested in a permit application, or through a permit condition. This includes a restoration plan if needed, especially for specific activities or in sensitive areas. Maintenance of equipment and record keeping is in most cases set in permit conditions and also for some in some in legislature, and three use GBRs. Operators are usually obliged to develop a specific plan related to maintenance and keep adequate records. Not all address the issue of staff training for all IED sites. For most this is part of EMS and demonstrating compliance with permit conditions. Most have specific conditions for certain industrial sectors or for specific activities.

On specific aspects (raw materials, energy, water noise and odour), most regulate the use of raw materials, energy and water only if included in BAT and or it is necessary. General provisions on conservation are included in permits. Only in some cases limits are set for reduction in consumption. Most require monitoring of consumption of energy with permit conditions and also via legislature (BAT on energy). Four employ GBRs. Almost half require an energy efficiency plan and some ask for specific reductions. A few have a different competent authority. Most handle noise and odour through permit conditions, three use GBR while others via legislature as well. Odour is regulated where needed. In almost all cases operators are obligated to take specific reduction measures and, in some cases, to keep records.

The conclusions are that there are different approaches in regulating Horizontal Issues. Only few use GBRs or legislature and even then, they are also included in the permit either as general or specific condition. For some aspects (duration of permit, process modifications, EMS, record keeping and reporting, etc.) some members set more demands on the operators and some have fewer requirements. There is not the same level playing field for operators and there are different requirements for resources in administration and operators. The results of the project give an opportunity to reassess their requirements and evaluate their importance in verifying compliance and environment benefits.

Future plans involved evaluating comments following the presentation and then drafting a short final report which would be and post it for comments. The final report could be included in some form in guidance document on IED or as a fact sheet in the DTRT guidance document.

The results of the project gave an opportunity to reassess the requirements and evaluate their importance in verifying compliance and environmental benefits. The intention was to evaluate comments received on the report, draft a final short report and include the report in the guidance book. Since the topic was especially relevant to the DTRT project, Chrystalla would send the draft report to Rob Kramers in case they wanted to do some further work on it.

Vlado said that Slovenia was writing a new environmental law and there was sometimes a conflict between General Binding Rules (GBRs) and what was contained in the Permit. The legislation in Scotland specified Permit can override GBRs. Permits can refer to GBRs and it is always the most modern version that applies.

4.5 Narrative BAT

There was no further progress on this.

4.6 BAT in Industrial Waste Water

The work which had been done on this could be the starting point for carrying out training. Horst would contact Romano to discuss this with him.

4.7 Going beyond BAT

The report had been completed and Jamie would ensure that it was sent to DTRT. No further work was required on it in DTRT and it could be included in the Guidance.

4.8 Report from the Baseline Report Workshop

A workshop was held last year in Cyprus. The results would be included in the final report on the project.

4.9 Working group on farming activities

This would be taken up in 2019.

4.10 Outstanding topics

The question of odours from IED installations (inspection and permitting) would be considered at the next meeting.

Self-monitoring had been raised as an issue in the 2017 report on the Implementation Challenge. The reports IMPEL had prepared would need to be promoted through the internet guidance.

5. Life+ application

Life+ could be a way of way of funding this project. Horst had been asked to think about that possibility, and also a possible merger between the DTRT and IED projects. The IMPEL secretariat would be able to offer support if a Life+ application were made.

6. Report from the Joint Inspection

The Joint Inspection was at an Oil Regeneration Plant (Sertego) near the town of Alfaro which had been working since 2010. There had been complaints from local residents about odour from the Plant. It was found that the odour came from the vapour distillation tower (COVs) and optional finishing treatment which is done with sulphuric acid. The gas was treated in a scrubber with a neutralising solution consisting of lime slurry.

The first step in the solution to the odour problem was a new system which collects all exhausts valves which work or can work under pressure as well as the venting of storage tanks and those which can generate odours. This system consists of two abatement washing steps in series, one with an alkaline solution and another with a base oil, followed by activated carbon filter and finally a pump that keeps the entire circuit in depression. For the second step, in 2014, the abatement system was expanded with a thermal reactor operating at 850^{o} C with a residence time of two seconds. No further complaints about odours were received. (The document on Best Available Techniques for Mineral Oil and Gas Refineries, point 4.23.6.3 Vapour Destruction (page 359) considers that thermal oxidation can reach 99 to 99.9% efficiency and catalytic oxidation 95-99%).

A copy of the permit was distributed to the inspectors. During the site visit the general observations were that the site was in good condition with its own well-equipped laboratory. There was a self-monitoring system and also an environmental management system (ISO 14001). For air emissions, there was an abatement system in place to capture odours. The emission control records were reviewed, and it was evident that there was compliance with the permit conditions. There was sampling and records of input waste oil and also records of output waste and asphalt. Copies of the records were kept by the environmental authority. For waste water, contaminated rain water and waste water from the process is shipped to an authorised manager and rain water from clean areas is submitted to a separation of oil.

Sampling and analysis of products is done before they are sold. Annual reports are submitted to the authority as well as to the PRTR (Pollutant Release and Transfer Register) system. For emergency response there are high level alarms from the system. The firefighting system consists of hydrants and foam. It was noted that spill response equipment was set up around the site.

The permit for the site contained no reference to odour. The operator had lowered the odour voluntarily, but it could have been closed down because of complaints from local people. There were no criteria in place on the level of complaints before an industry was closed down. Latvia and Turkey had regulations in place on odour and The Netherlands had a policy on this. Odour was difficult to substantiate in court.

Odour was one of the open topics and it would be possible to lead a project on that if someone wanted to do that.

7. Results from the breakout groups

7.1 Joint Inspections (Marinus)

The group had looked at how to take this forward. They wanted to identify the needs of different sectors through a questionnaire and also to identify who had expertise in these areas. The questionnaire would be sent to all groups. This would require additional funding which Marinus would explore with Horst. The programme would be separate from meetings and thus easier to organise. It should be possible to carry out up to five inspections per year. For this year, as already planned, the remaining joint inspections would be a distillery and a cement production facility.

7.2 BAT (INCLUDING GBRs, Application of BAT in four years, and Narrative BAT) (Jamie)

The group would aim to produce initial findings before June and may decide to circulate a questionnaire later on. They will make use of material that exists already.

7.3 Tools

The group had discussed how to go on with this work. A report would be drafted and circulated within the group. It would include recommendations to be incorporated into the combined guidance. The report would be presented at the meeting in June.

7.4 Development of online guidance, profile of qualification and training material

Giuseppe had offered the use of the ISPRA online training tool. The tool would be on the ISPRA server and it would be possible to develop it with Giuseppe. All that would be required would be some text and background material. It should be easy to count the number of people using it and also the number of people who dropped out part way through. It was not yet clear whether the training would be static or interactive, though the meeting expressed a preference for it to be interactive. The question of whether there was a budget for this work would need to be discussed with the Commission.

It was agreed it would be a good idea to volunteer to try the ISPRA system this year which would help identify its positive aspects and potential limitations. It would be necessary to be clear about who the training was intended for and it should be developed in cooperation with the Commission. It had been agreed that the target group for the Guidance Book would be those planning inspectors (rather than inspectors themselves) and it was suggested that the training might be targeted at a similar level.

The DTRT project was planning to have a workshop on training. Volunteers to take part from the IED Implementation project included Marinus, Martine, Dubravka, Florin, Vlado and Wulf.

(After the Project Meeting was over there was a meeting of those in the working group on Training. In addition, Antonio and Ruth attended the meeting. Portugal had identified a training need for its inspectors and Malta had a training need as well. Portugal is working on minimum content for inspections (site visits) but wanted to provide training of inspectors on inspections though Horst pointed out that basic training for inspectors was a matter for Member States. Horst suggested that initially some training materials might be prepared without extra money and in the longer term larger scale training material could be prepared with financing from the Commission. It would be important to tie the training to the combined guidance and to have contact with the Commission to let them know what we were planning to do. To start with: IRAM, minimum content of site visits, levels of compliance/non-compliance, operator self-monitoring and waste water inspection were identified as training material.

Ruth and Antonio would consult colleagues in Malta and Portugal respectively to define further what their training requirements were. Experts would need to be invited to cover the chosen topics. Horst would note down what he had presented on minimum content of site visits during the previous year. He would send out a paper for consideration in April. He would contact Giuseppe to take up his offer to use the ISPRA training tool.

8. IED Project Organisation

There was an issue with the budget in that some countries with more than one member of IMPEL had said that they should have priority for the allocation of places. This question had been considered by the IMPEL Board which had decided that at least one member per country should participate. If there was space, the second person should come from countries with more than one member.

For the future some people had argued that there should be some smaller projects. However, a few years ago it had been decided that each Expert Team should have bigger and longer running projects. The question was whether the present number of participants was right or whether there should be smaller numbers of participants on different topics.

In the discussion, the general view was that the project should continue as now. It had made valuable progress and the difficulty with several smaller projects was that there would be no overview. A large group was difficult to organise but the flexibility it offered was important and that should continue. It might be possible to consider having some smaller projects in the future or smaller groups within the project.

The project would continue to provide guidance and would concentrate on those topics where particular needs had been identified, such as operator self-monitoring.

An article would be prepared for the IMPEL newsletter which would include information about what had been done over the previous two days.

Horst would review the project abstract, taking into account what it was intended to do in the project over the coming year. He would make a proposal for some slight changes to it and then request members of the project to translate it into their own languages.

The proposed project team meeting in Scotland would be in the week beginning 18 June and the workshop would be in Vienna at the beginning of October.

The rule on reimbursement was that the form (available on the IMPEL website) and the scanned invoices should be sent to Florin (florin.homorean@gnm.ro) who would then sign the form and forward it to Carmen.

Those present at the meeting:

COUNTRY	NAME
BELGIUM	Jan Baeten
BELGIUM	Martine Blondeel
CROATIA	Dubravka Pajkin
CYPRUS	Chrystalla Stylianou
CZECH REP	Augustin Tomas
DENMARK	Rikke Cochran
ESTONIA	Silva PRIHODKO
FINLAND	Anna Laiho
GERMANY	Wulf Böckenhaupt
GERMANY	PM-Horst Büther
ICELAND	Halla Einarsdóttir
IRELAND	Martin O'Reilly
ITALY	Roberto Borghesi
ITALY	Fabio Colonna
MALTA	Ruth Ciarlo

NETHERLANDS	Marinus Jordaan
POLAND	Malgorzata Monika Budzyńska
PORTUGAL	Susana Pires
PORTUGAL	Antonio Quintas
ROMANIA	Florin Homorean
SLOVENIA	Vladimir Kaiser
SLOVAKIA	Cyril Burda
SPAIN	Albert Avellaneda Bargués
SPAIN	Katia Juárez
SPAIN	Host-Mª Jesús Mallada
SWEDEN	Maria Enroth
TURKEY	Senay Arslan
UK	John Seager (Consultant)
UK	Terry Shears (Consultant)
UK	Jamie McGeachy

Annex III

European Union Network for
the Implementation and Enforcement
of Environmental Law

MINUTES OF THE WORKSHOP

Doing the Right Things and IED Implementation

Date: 15 – 16 May Lisbon 2018

Location: IGAMAOT, Portugal

Day 1

1. Opening

Mr. José Brito e Silva (deputy Inspector General of IGAMAOT) welcomes the participants of the workshop, stressed the importance of the work and wished the group a fruitful meeting. The chair and co-chair (project leader Tony Liebregts and Horst Büther) opened the meeting and discussed the programme and the logistics of the 2 days.

2. Tour the table

The participants introduced themselves and expressed their expectations concerning the workshop and the project.

3. Aim

Tony presented the aim of the workshop:

- To discuss the parts in the guidance that still needs to be developed;
- To discuss how an online version of the guidance should look like;
- To discuss how IMPEL should organise capacity building and trainings.

4. Missing parts in the guidance

Rob introduced this item. Based on the content of the guidance and the discussion in the IED implementation project the following subjects have been identified that needs to be further explored:

1. Implementation of BAT conclusions in national legislation.
2. Access to information and Public participation (Factsheet and/or good practise)
3. Access to Justice (Factsheet and/or good practise)
4. Actions as a result of complaints and accidents and incidents (non-routine inspections).
5. Climate change adaptation – or incident prevention because of severe weather conditions (Factsheet)
6. Setting priorities for permitting
7. Developing a work plan for permitting
8. Evaluation and feedback

Working groups

Based on the introduction 4 working groups discussed the following questions:

- Are these the most important issues?
- What can we add?
- What information is already available (good practices)

Outcome of the discussions in the working groups.

Implementation of BAT conclusions in national legislation

Guidance would be helpful how to considers BAT conclusion in the permitting process. The following issues were especially mentioned:

- Good practices on the procedure who takes what kind of action 1 year after BAT conclusion is published, the operator or authority, In Austria, within one year of publication of the BAT conclusions the plant operator has to inform the permitting authority about the state of the plant.;

- Good practices in changing national legislation as a result of new BATC;
- Checklists for BAT for authorities;
- Information on what the consequences are in relation with GBR;
- Information on National BAT versus BAT-C . When to use BATC AELs or when to use national BAT AELs when BATC AELs don't apply;
- Information on BATC versus air and emissions quality legislation – standard method & ELV differences. Guidance on how each country should deal with the differences.

Evaluation and feedback

Good practices are here of importance. In Denmark there is experience with National meetings and in the Netherlands the task of giving feedback to the national authority of what happens in the field is allocated to a specialised centre (InfoMil). It was also stated that evaluation and feedback should be part of the work plan of an Authority.

Actions as a result of complaints and accidents and incidents (non-routine inspections)

Good practices would help here. Especially information on 24h availability services and the cooperation with the inspectors. Follow-up actions are also important to share, for example reviewing the permit and setting stricter ELV's after an incident or accident.

Access to information and Public participation

The subject depends a lot on the national regulation and the culture in the Member Country, but sharing good practices would be helpful. For example, how to involve public in the permitting and inspection results and when public can interact in the process. Also good practices on the type of information and how much information can be shared, e.g. inspection reports or minutes and other sensitive information.

Access to Justice

The subject depends again on the legal situation in the Member Country, but sharing good practices would be helpful. National arrangement have to be in place on this issue. For example the right for the operator to go to justice if he or she doesn't agree with the stricter ELV's after a review of the permit. Further it would be helpful when we share practices on when appeal is appropriate, and the time it takes in courts. Information could be shared on special courts for environmental issues and judges with environmental skills.

Climate change adaptation – or incident prevention because of severe weather conditions

This is seen as an important issue. The guidance should explain links with general policies (eco-innovation, circular economy, climate change). A factsheet could assess the potential influences of climate change. It could identify the hazards and threats and possible mitigation measures in permits and prepare a list of potential risks. This issue is seen as a cross cutting across issue for all legislation, not just IED.

A study has been done in The Netherlands. Portugal has experience with dynamic permits – it sets ELVs (e.g. water discharges) for different times of year – depending on rainfall or drought.

Setting priorities for permitting

This is seen as an important issue but there is not a lot of experience here.

Ireland has experience that can be shared. Priorities can be set for entire sectors e.g. whiskey distilleries, oil refineries, landfills. Look at all the stress factors e.g. sectors requiring prioritisation, economic stresses, complaints from enforcement, legislation changes etc. Attribute a weighting to each stress factor e.g. legislation change 10, complaints 8 etc. List each permit on-hand and predicted permits to arrive in three year. Score each permit application against the stress factors and weightings – excel formula will output priorities based on agreed stress factors and weightings. Dynamic system based on what comes in throughout the year, change in stress factors and weightings may change.

Developing a work plan for permitting

Also an important issue but not a lot of experience. Some experience in the Netherlands that can be shared.

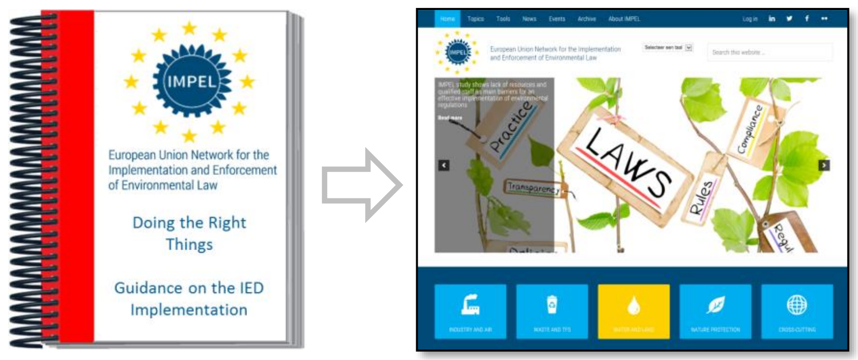
General issues

During the working groups the following general issues have been raised:

- Not all factsheets are finished.
- How can we align the factsheets with the results of the experts groups of the commission.
- How do we manage that factsheets will be updated over time. Can we appoint a responsible person for each factsheet.

5. Online version of the guidance

Rob introduces this item. The guidance has been developed in a way that it's relatively easy to make it accessible on internet. The workshop was asked what the best way is to make an online version of the guidance.



Rob presented a demo of how the combined guidance could be part of the IMPEL website. The demo can be found in annex III.

Working groups

Based on the introduction and the demo 4 working groups discussed the following questions on this topic:

- How should the guidance look like to use it as training material;
- Should the guidance be accessible for everyone or behind closed doors;
- How should an online version of the guidance look like.

<u>Outcome of the discussions</u>

The demo is seen as good online solution for the guidance. It's important that you can jump to different items and back but we have to make sure not to lose sight of where we are in the cycle when zoomed in. It's not necessary to make it real interactive but a combination with a discussion forum would be of help.

The navigation page for legislation is also seen as a good solution to navigate from IED articles to different sections in the guidance. We have to see if it can be simplified a bit more. Further it's important to link directly to the actual IED legislation and BAT documents (Eurlex and EIPPCB).

The online tool should also contain some Q&As/FAQs page and a search tool (on keywords).

Arrangements have to be made to organise the maintenance (update or new subjects). This could be done by appointing people that are responsible for parts of the guidance or factsheets and or to develop a forum so members can share their ideas and comments.

The majority of the working groups wants to leave the guidance open for everybody to read. However it would be good if it's possible to secure some of the more technical data or working documents when this is sensitive information.

Training material: the guidance is a good starting point for specific training programs, however it should also include exercises and case studies. Language could be an issue (translation would help here).

Preference to give face to face training, however, this means training will not be available to everyone at one time. Idea to record training events and make it available to everyone.

6. Capacity building and training

6.1 . State of play

Simon Bingham presents the current state of play – what's the position of the EU Commission and where does IMPEL stand. The sheets of the presentation can be found in annex IV.

EU Compliance Assurance Initiative:

- Commission Communication with 9 actions (COM(2018)10)
- Commission Staff Working Document (SWD(2018)10)
- Commission Decision establishing a new Commission Expert Group (C(2018)10)

From the 9 actions of the commission the following 4 actions are especially of interest for IMPEL:

Action 1: Combining forces - Builds on (1) IMPEL peer reviews, (2) IMPEL joint enforcement actions and (3) EU Peer2Peer tool.

Objectives: (1) deepen and widen thematic and geographical coverage of joint enforcement actions and peer reviews in discussion with IMPEL and other networks (2) Improve other related approaches, e.g. compliance assurance visits, e.g. waste compliance promotion visits

Action 2: Training - Strong demand from professionals. Efforts to date limited, e.g. COM training programme for judges and prosecutors and networks activities.

Objective: identify training needs and ensure follow up with more effective training

Action 3: Knowledge sharing - Ensure a more complete and coherent COM web-presence on environmental compliance assurance. Publicise results of actions under the Action Plan. Improve transparency generally.

Action 9: Assessment framework on compliance and governance - Improve understanding of national compliance assurance systems and other governance features. Define assessment criteria to assess their effectiveness. Produce country-specific reports.

<u>IMPEL needs develop a plan and a strategy.</u>

6.2 Training needs

Working groups

Based on the presentation 4 working groups discussed the following questions about the Needs for capacity building and training:

- What are the subjects?
- Who is the target group or organisation?
- What is their profession, tasks and responsibilities?
- What is their current knowledge and experience?

- Are they ready to learn, is there any resistant, what is this resistance
- What is the preferred training form?

Outcome of the discussions

General issues

- should we conduct basic training of a civil servant
- what does the COM means with "more training
- we need to start trainings on the tools already developed by IMPEL
- IRI should be the basis for follow up training
- should there be min criteria of skills or criteria of a permit writer and inspector
- important to raise awareness: management, inspectors and permit writers,
- training is a topic underestimated in many of our organizations
- Government to government

Training subjects

- **Generic skills**
  - BREF, BAT Assessment, BAT conclusions, Cost-benefit analyses
  - planning (for inspection and permitting)
  - self monitoring (validating emission reports)
  - winterisation (discharges waste water,)
  - start-ups (new installations, or daily)
  - eco-innovations
  - dust, noise, odour
  - spatial planning
  - inspectors skills (techniques auditing, planning, preparation)
  - permit writers skills (techniques, procedures, negotiation)
  - application
  - baseline report
  - selecting the right condition, derogation
  - personal security issues

- awareness about SEVESO permit writer
- closure of installation, bankruptcy
- climate change / Natural disasters - preparedness
- EU Legislation (IED, SEVESO etc)

• **Specific skills**
  - specific BREF
  - waste administration
  - specific sector (e.g. Landfill, Intensive life stock, Waste-incineration, solvents)
  - SEVESO (safety management systems)
  - TFS: waste and non-waste – end of waste, classification, take back procedures
  - emergency response

• **Soft skills**
  - handling conflicts
  - feedback
  - resistance

<u>Training group</u>

• **Primary target group**
  - permit writers and inspectors (if possible together) – operational issues
  - (high level) Managers – strategic issues -
  - policy makers – legislation and policy;
  - lawyers and prosecutors - legal system
  - new people coming in
  - administrative bodies

• **Secondary target group**
  - Environmental police
  - Technical consultants
  - Operators (in understanding the way to implement laws and permits)
  - NGO's

<u>Possible resistance with the training group</u>

- lack of time for training
- language
- not interested in new things
- motivation
- cultural barrier
- admitting you don’t know something
- they may feel their systems are optimum
- depends if trainee is sent or coming on own initiative
- solution: presentation/pitch sent to the competent authorities

Day 2

6.3 Strategy, toolkits and structure

Rob and Romano introduced this topic and asked the group the questions on a multi year wide strategy for IMPEL, IMPEL's toolkit and the possible structure for IMPEL dealing with capacity building and training.

IDEAS on the Strategy

The multi year wide strategy should address the following issues:

- What is the baseline?
- What are the gaps?
- What are the best practices?
- How can we address these gaps with training?
- How should we structure ourselves?
- What should be our toolkit?
- What about funding and resources?

IDEAS on the Toolkit

The toolkit of IMPEL should at least contain the following instruments

Seminars	Joint inspections	Methodology and Tools
Workshop	Exchange programmes	IRI
Webinars	Train the trainer	Quizzes and games
E-learning	Knowledge Communities	Reference materials
Training videos	Case studies	Chat rooms

IDEAS on the Structure

When deciding on the structure of IMPEL (concerning capacity building and training) the following questions should be answered

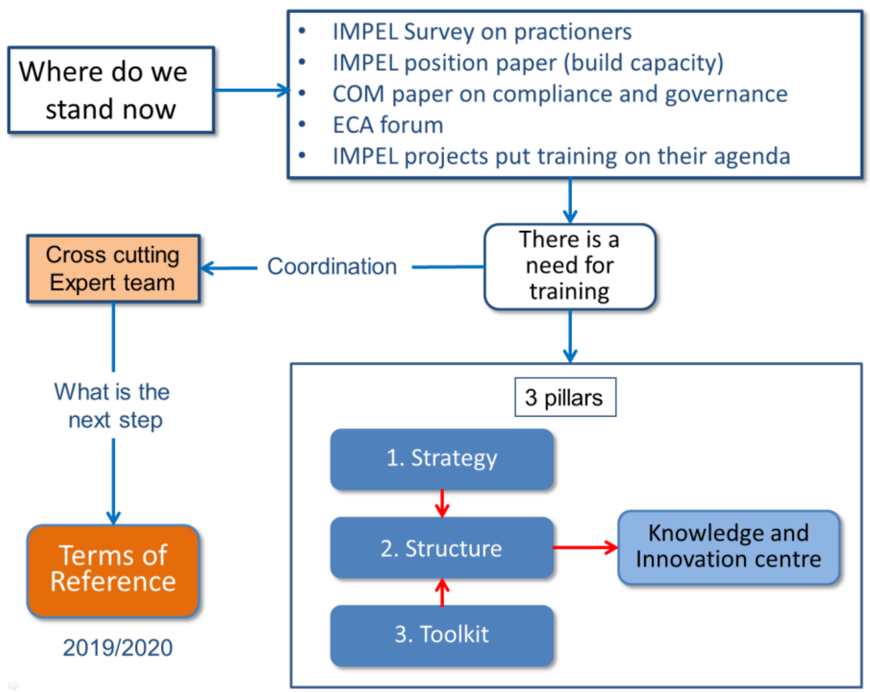
Within IMPEL	Compliance Assistance Academy	Funding
Working for the EU COM	Knowledge and Innovation Centre	Resources
Outside of IMPEL	Implemen-tation portal	Training form

Working groups

Based on the introduction 4 working groups discussed the following questions about strategy, toolkits and structure:

- What are your thoughts on the IMPEL strategy
- How should the toolkit of IMPEL look like
- How should the structure of Capacity building and training for IMPEL look like

Outcome of the discussions



First pillar: Multi year strategy on Capacity building and Training

- Ambition or mission of IMPEL
- Define the target group (should IMPEL train every civil servant)
- The needs of capacity building and training
- Set priorities on the different areas of the needs
- Multi accessible resource or toolkits
- What type of training (social vs technical skills)
- Should we conduct accredited trainings? (long term ambition)
- How we will be funded

Relation with the IRI

1. IRI 1st cycle - Assess training needs/gaps as part of IRI – baseline & gap analysis;
2. Experts deliver training within 5 years and/or support the implementation of the opportunities for development (closure of IRI action).
3. IRI 2nd cycle - review effectiveness as part of review and identify gaps – ongoing cycle of gap identification and continuous improvement.

Second pillar: structure

Vision**:** Permanent structure within IMPEL (new generation):

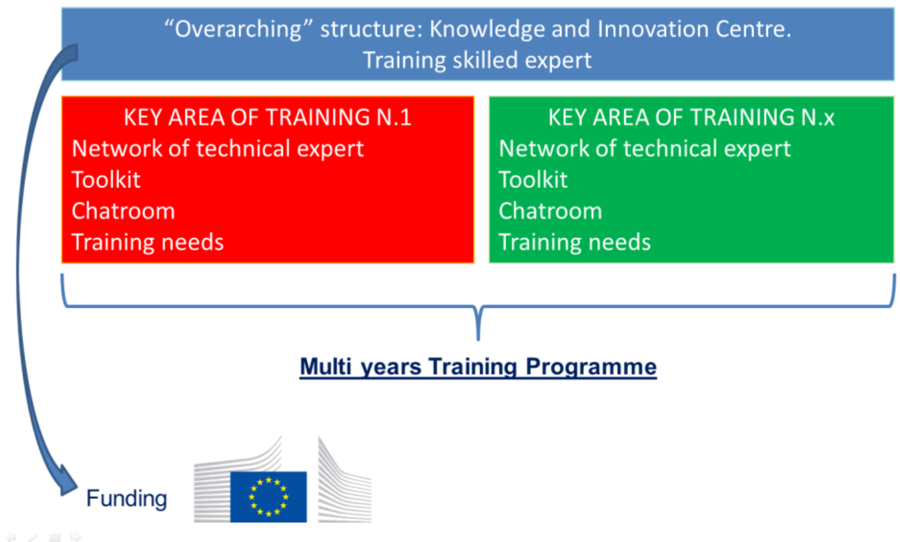
IMPEL Knowledge and Innovation Centre

Tasks of a Knowledge and Training Centre

A. Training centre

- Training network
- Develop training material
- Develop training programs / courses
- Developing training tools
- Conduct train the trainer courses
- Conduct basic environmental trainings

B. Developing new methodology or tools
C. Facilitate projects
D. Focal point (exchanging experts / information)
E. Helpdesk
F. Centre organised in priority areas
G. Frame work agreement with the COM
H. Moderator of chat rooms or knowledge communities
I. Assignments from the COM is only possible when they are not political
J. Experts outside the centre will be reimbursed
K. Facilitate IRIs
L. Funding by the COM



Human resources

- Generic experts in the Knowledge and Innovation Centre
- Specific experts in the Member Countries
- Creating a network of experts / trainers
- Agreements with Member Countries or with the experts to support
- Experts in Member Countries will be trained to be a trainer
- Cooperation with other EU networks like EU Forum JE.

- Payment of the experts to motivate to participate as training expert.

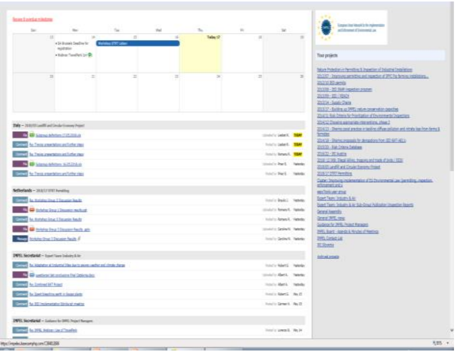
Third pillar: Tool kit

List of tools that could be used to deliver training:

- Seminar
- Workshops
- Webinars
- E-learning
- Training videos
- Face to face trainings
- Exchange programmes
- Train the trainer
- Knowledge communities
- Case studies
- Methodology and tools
- IRTI
- Quizzes and games
- Refrence materials
- Chat rooms
- Video conferences
- Intervisions
- Apps

Website:

- Methodologies
- FAQ
- Wikipages
- Search engines



Platform (e.g.Basecamp)

- Training platform
- Documents
- Videos

The tool or format depends on the target group and the subject

Annex I: Workshop Programme

15 May 2018

Time	Subject
09:00	Welcome by the host country and the chairs
09:15	Tour the table (function and expectations)
	GUIDANCE - MISSING PARTS / ONLINE TOOL
09:45	The missing parts in the DTRT Guidance - short introduction
10:00	DTRT Guidance as an online-tool – short introduction
10:15	Coffee break
10:45	Working groups sessions • Missing parts • Online-tool
11:45	Plenary feedback from the groups
12:15	Discussions and conclusions
12:30	Lunch
	CAPACITY BUILDING AND TRAINING
14:00	IMPEL and training: Position of the EU Commission / Where does IMPEL stand

14:45	Working groups sessions: Needs for capacity building and training (information, knowledge and skills)
16:15	Coffee break
16:45	Plenary feedback from the groups
17:15	Discussions and conclusions
17:30	Closure of day 1

16 May 2018

Time	Subject
09:00	Welcome and opening of the second day, looking back at day 1
	CAPACITY BUILDING AND TRAINING
09:15	Ideas about training • Strategy • Tool-kit • Structure
09:45	Working groups sessions • Thoughts on the IMPEL strategy • The IMPEL tool-kit on training • How to structure capacity building and training within IMPEL
11:45	Plenary feedback from the groups

12:30	Discussions and conclusions
12:45	Closure of the workshop

Annex II: List of participants

	Country	Name	email
1	Austria	Brigitte Winter	brigitte.winter@umweltbundesamt.at
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11	Portugal	Rita Novais	
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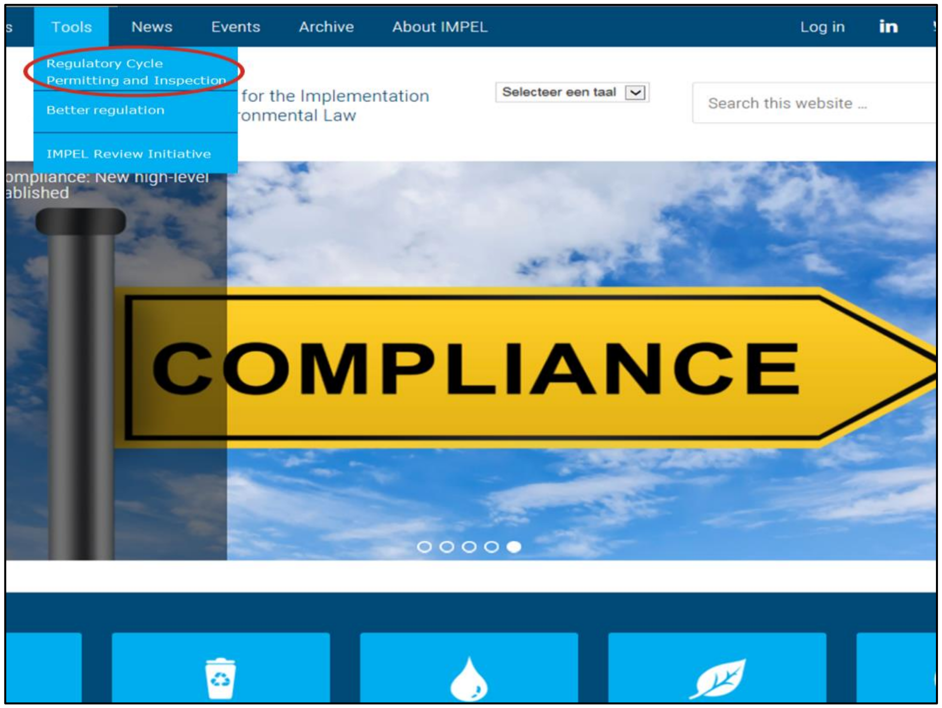
22	United Kingdom	Terry Shears	terryshears@talktalk.net

Annex III: Demo of online guidance



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Legislation / Industrial Emissions Directive
The Industrial Emissions Directive 2010/75/EU of the European Parliament and the Council (IED) is the main EU instrument regulating pollutant emissions from industrial installations. The IED was adopted on 24 November 2010 and entered into force on 6 January 2011.
IED
PART II
PART III
Regulatory Cycle
Policy planning
Goals & Objectives
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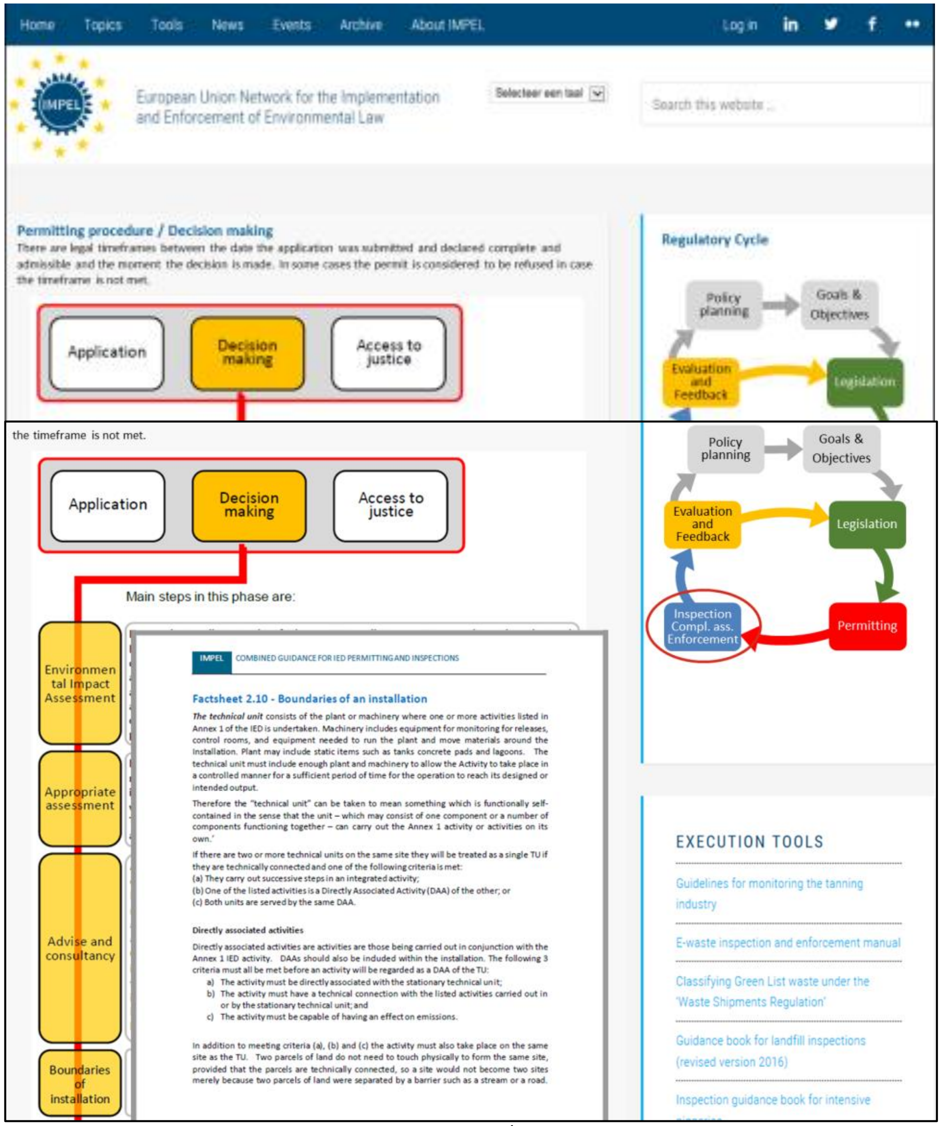
The Regulatory Cycle
The Regulatory Cycle is used to assist government agencies in charge of regulating the impact to the environment and to develop strategies. It helps them, to work systematically towards a permitting, compliance and enforcement programme that will include structured feedback. Figure 1 shows the sequential steps. Activities within these steps are interrelated, and a missing or underdeveloped step immediately affects the step that follow. For example, inadequate permitting affects inspection and enforcement actions. Inspections are only effective if permitting can be used as a proper starting mechanism. Compliance checking and monitoring are only effective if an inspection system is in place and the consequences of non-compliance can be adequately addressed in the follow-up activities. When there are non-enforceable regulations or permit conditions in place, feedback may lead to adjustments in the legal framework or in the permit conditions to make them more enforceable.
Policy planning
Goals & Objectives
Evaluation and Feedback
Legislation
Inspection Compl. ass. Enforcement
Permitting
PLANNING TOOLS
Guidance on Effective Waste Shipment Inspection Planning
Step-by step guidance book for planning of environmental inspection
Risk criteria database (IRAM)
Guidance for the implementation of the IED in planning and execution of inspections
easyTools – Risk assessment guidance book
EXECUTION TOOLS



IMPEL COMBINED GUIDANCE FOR IED PERMITTING AND INSPECTIONS

Factsheet 2.10 - Boundaries of an installation

The technical unit consists of the plant or machinery where one or more activities listed in Annex 1 of the IED is undertaken. Machinery includes equipment for monitoring for releases, control rooms, and equipment needed to run the plant and move materials around the installation. Plant may include static items such as tanks concrete pads and lagoons. The technical unit must include enough plant and machinery to allow the Activity to take place in a controlled manner for a sufficient period of time for the operation to reach its designed or intended output.

Therefore the "technical unit" can be taken to mean something which is functionally self-contained in the sense that the unit – which may consist of one component or a number of components functioning together – can carry out the Annex 1 activity or activities on its own.'

If there are two or more technical units on the same site they will be treated as a single TU if they are technically connected and one of the following criteria is met:
(a) They carry out successive steps in an integrated activity;
(b) One of the listed activities is a Directly Associated Activity (DAA) of the other; or
(c) Both units are served by the same DAA.

Directly associated activities

Directly associated activities are activities are those being carried out in conjunction with the Annex 1 IED activity. DAAs should also be included within the installation. The following 3 criteria must all be met before an activity will be regarded as a DAA of the TU:

a) The activity must be directly associated with the stationary technical unit;
b) The activity must have a technical connection with the listed activities carried out in or by the stationary technical unit; and
c) The activity must be capable of having an effect on emissions.

In addition to meeting criteria (a), (b) and (c) the activity must also take place on the same site as the TU. Two parcels of land do not need to touch physically to form the same site, provided that the parcels are technically connected, so a site would not become two sites merely because two parcels of land were separated by a barrier such as a stream or a road.

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The Inspection Cycle

The structure can best be explained by first focussing on the Strategic cycle. The strategic cycle are for the managers. The first step here is Describing the context. Here we identify and describe the information that is needed to set the right priorities (step 2) and define our objectives and strategies (step 3). Based on these 3 steps we can prepare the inspection plan

In the operational cycle we see a Plan Do Check Act Cycle (PDCA). First step is preparing an inspection plan (see strategic cycle above). Based on this plan we make sure all conditions are met to execute this work (Execution Framework). Next step is the execution of the inspection, compliance assessment or enforcement. Last step is performance monitoring. Here we check if the inspection targets that are formulated in the plan are met and if we need to make changes in the planning step

In the step Inspection, compliance assessment and Enforcement the actual work is executed ()actual inspection work (preparation, executions and reporting). Although the steps in this part could be linear (with a clear beginning and an end) in many cases inspection work for a certain object will never stop. This can be because a non-compliance is identified but also because the IED prescribes a certain frequency (based on risk) after which the object needs to be inspected again

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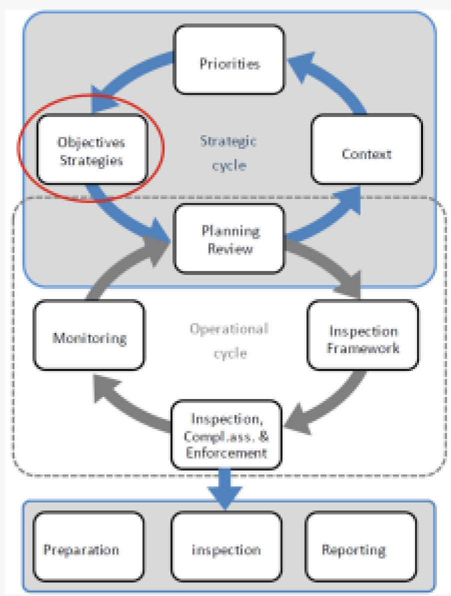

PLANNING TOOLS

- Guidance on Effective Waste Shipment Inspection Planning
- Step-by step guidance book for planning of environmental inspection
- Risk criteria database (IRAM)
- Guidance for the implementation of the IED

EXECUTION TOOLS

- Guidelines for monitoring the tanning industry
- E-waste inspection and enforcement manual
- Classifying Green List waste under the 'Waste Shipments Regulation'
- Guidance book for landfill inspections (revised version 2016)
- Inspection guidance book for intensive piggeries
- Waste sites manual
- Good practice for tackling diffuse nitrate pollution from farms and farmsteads
- Guidance for the implementation of the IED in planning and execution of inspections
- Step-by-step guidance book for waste shipment inspections

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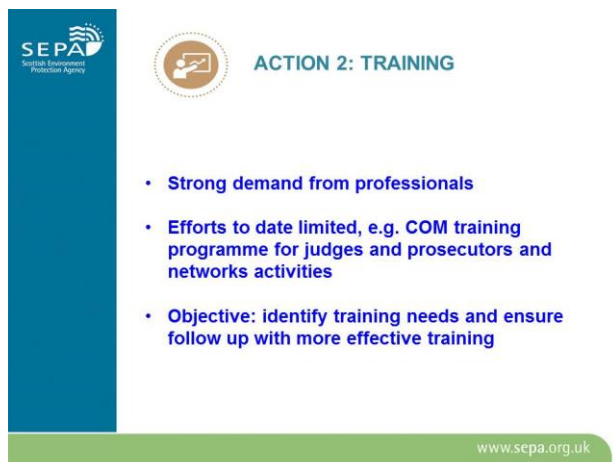
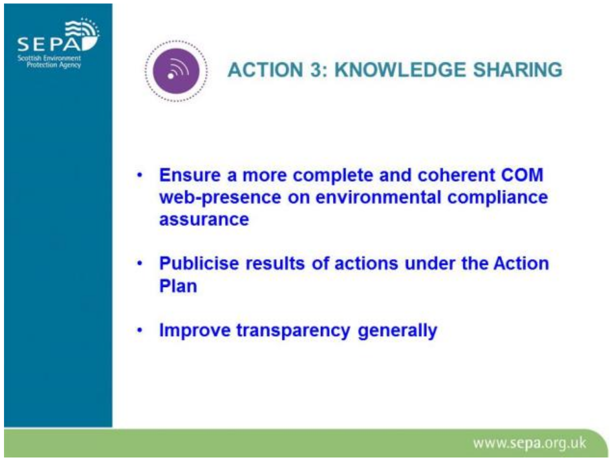
Objectives and Strategies
Based upon the (assigned) priorities, the inspecting authority sets targets and objectives. In order to establish whether these objectives and targets can be and will be met, the output and the outcome must be monitored. This is generally done by using performance indicators. Examples of performance indicators on outcome that may be useful are:
The amount of incidents or complaints occurring;
The level of compliance;
The actual achievement of reduction targets for certain pollutants or certain risks at the sites that are directly regulated or enforced by the inspection authority;
Improvement of air, land and water quality through the actions of the inspectorate to improve compliance.
The inspecting authority may want to link its objectives with certain inspection strategies to ensure that these objectives can be met in both an effective and efficient manner, causing minimal burdens for the company and the authority. It may furthermore want to adopt and use certain communication strategies for exchanging information internally and with other competent authorities.
Subjects that can be addressed are:
co-operation and information exchange between inspecting organisations and other authorities;
Regulatory Cycle
Policy planning
Goals & Objectives
Evaluation and Feedback
Legislation
Inspection Compl. ass. Enforcement
Permitting
Subjects that can be addressed are:
co-operation and information exchange between inspecting organisations and other authorities;
the character and form of inspection;
the effect of the operator's behaviour on the inspection frequency;
the path of administrative and/or criminal follow-up upon non-compliance, which must be firm, fair and
Objectives and Measu
Setting targets on input
See Factsheet 3
IMPEL COMBINED GUIDANCE FOR IED PERMITTING AND INSPECTIONS
Factsheet 3.05 - Defining Objectives
Inspection authorities need to show that they are effective, that their activities solve problems, prevent harm or lead to environmental improvement. Authorities that are unable to show how they make a positive difference may face budget cuts or even run the risk of discontinuation. For that reason authorities may want to introduce targets describing certain desired outcomes and assess their efforts against these targets. The challenge here is to identify outcomes that are relevant, that can be influenced by the inspection authority's activities, and that are capable of being measured.
To illustrate the use of the terms "objectives "and "targets on outcome" we can consider a simple situation where an inspection authority wants to see an improvement in the quality of water in local rivers; that's the outcome and can be set-out as an objective. The objective could be expressed qualitatively – that the rivers are to be capable of supporting certain species of fish, or quantitatively – that the concentration of key pollutants does not exceed a particular level. This would be an appropriate objective if the inspection authority can influence the outcome. In this example, the outcome is realistic if we assume that the water quality is mainly influenced by discharges from regulated facilities and that if all of these facilities complied with their permit conditions the objective would be met. This suggests that an appropriate target on outcome would be for the inspection authority to ensure compliance with discharge limits from facilities it regulates.[5]
In the real World, some authorities are nervous about setting targets that they are not completely and exclusively in control of. They are worried that they will be criticised if targets are not met because of an unpredictable incident for example. However, it is extremely unlikely that an inspectorate will ever define outcomes that are completely in its control. What matters is that their work is targeted at achieving the desired outcome and that deviations caused by external factors are understood and can be explained. Equally important is that an authority both internally and externally communicates clearly on outcomes achieved and how and to what extent its works has contributed to these. An authority can and should claim successes when it can show that its efforts have led to concrete results.
Inspection authorities can decide to use targets on outcomes in combination with targets on inputs and outputs. Targeting and monitoring inputs can help an authority to show "the price" for achieving certain outcomes or how efficient certain inputs are in relation to the achieved outcomes. Targeting and monitoring outputs can help an authority to demonstrate
[5] Note that in the IMPEL project report, mentioned in section 2.1 and footnote 2, the distinction is made between "final outcome" and "intermediate outcome". One could argue that in the terminology of this guidance an objective describes a desired final outcome, like a certain improvement of the environment. A target (on outcome) describes a desired intermediate outcome, in terms of a certain improvement in compliance leading to the final outcome of improvement of the environment. We have chosen not to use the terms final outcome and intermediate outcome in this guidance, but to stick to the terms objectives and targets as defined in the "Doing the right things" Guidance Book.
EXECUTION TOOLS
Guidelines for monitoring the tanning industry
E-waste inspection and enforcement manual
Classifying Green List waste under the 'Waste Shipments Regulation'
Guidance book for landfill inspections (revised version 2016)
Inspection guidance book for intensive piggeries
Waste sites manual
Good practice for tackling diffuse nitrate pollution from farms and farmsteads
Guidance for the implementation of the IED in planning and execution of inspections
Step-by-step guidance book for waste shipment inspections

Annex IV: Presentation IMPEL and training




SEPA
Scottish Environment Protection Agency
ACTION 3: KNOWLEDGE SHARING
Ensure a more complete and coherent COM web-presence on environmental compliance assurance
Publicise results of actions under the Action Plan
Improve transparency generally
www.sepa.org.uk


SEPA
Scottish Environment Protection Agency
ACTION 4: GUIDANCE ON COMBATTING ENVIRONMENTAL CRIME
ACTION 5: GUIDANCE ON COMPLIANCE ASSURANCE IN RURAL AREAS
ACTION 6: TECHNICAL GUIDELINES FOR INSPECTIONS OF EXTRACTIVE WASTE FACILITIES
ACTION 7: COMPLAINT-HANDLING
ACTION 8: GEOSPATIAL INTELLIGENCE
www.sepa.org.uk


SEPA
Scottish Environment Protection Agency
ACTION 9: ASSESSMENT FRAMEWORK ON COMPLIANCE AND GOVERNANCE
Improve understanding of national compliance assurance systems and other governance features
Define assessment criteria to assess their effectiveness
Produce country-specific reports
www.sepa.org.uk


SEPA
2. GIZ / IMPEL Project
Combatting environmental crime in South East Europe
6 Target countries
Targeted at judiciary & law enforcement officers
Specifically Illegal killing/destruction, CITIES, waste and Timber Regs.
Training needs assessment
Develop & deliver training
Recommendation for future work
www.sepa.org.uk

3. UNU / IMPEL Project Waste Crime

- Submitted proposal for project to DG Home and Justice
- General Objective:

  To enhance intelligence and operational activities of the law enforcement authorities through tool development and capacity building activities (training).

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IMPEL thoughts?
Well my thoughts for what they are worth!

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Well my thoughts for what they are worth!

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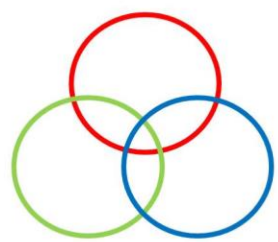
Well my thoughts for what they are worth!



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European Union Network for
the Implementation and Enforcement
of Environmental Law

Annex IV

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Note of the joint IED Implementation Project Team and DTRT (Permitting) Meeting, Edinburgh, 20-21 June 2018

Summary of action points from the meeting

1.	During the project team meeting in Austria in October a session will also be dedicated to test the website to see whether all parts are well placed on the website. Volunteers for testing the online tool are Marinus, Deniss, Martine, Simone and Elisabete.
2.	Lorraine Hutt to share the Environment Agency factsheet on incident prevention because of severe weather conditions.
3.	Members of the group on Waste Water from Industrial sites will look at their document to see what is missing or needs to be updated – deadline is 10 September.
4.	Members of the group on Waste Water from Industrial sites will look at how training might be developed on this topic and put their proposals to

	the Training Group.
5.	Jamie to circulate the questionnaire on BAT conclusions to other members of the project team and to add some questions to give context.
6.	Simon to update the report on horizontal aspects of permitting which could then be submitted for final approval.
7.	The Tools group would put their suggestions for minor changes to the report to John.
8.	Fabio would send a draft report on baseline reporting to Horst. He would see whether he could make a factsheet from the report when it has been approved by the General Assembly.
9.	Lorraine would prepare a draft ToR on a possible subgroup on adapting to climate change.

1. Welcome by the Scottish Host

On behalf of SEPA, Jamie welcomed the participants to Edinburgh and to the meeting. The Chief Executive Officer of SEPA, Terry A'Hearn, also welcomed the participants by video. He said that SEPA was seeking to encourage a circular economy in Scotland that would reduce emissions from industry. The goal of one planet prosperity held by SEPA would lead to a reduction in the use of water, energy and raw materials. The IMPEL network would have a critical role in helping to achieve this and he looked forward to hearing about the outcome of the conference.

Horst thanked the Scottish hosts and added his welcome. He particularly thanked those who had come on their own budgets. Again, the interest to participate in the project was much bigger than the available budget.

There was a tour de table in which each of the participants introduced themselves.

2. Cooperation of IED Implementation and DTRT in 2018

Horst noted on the Doing the Right Things (IED) combined guidance that the two project teams (IED Implementation and DTRT) will continue to work together on the development. Division of the work is as follow: the project team DTRT responsible for the structure of the Guidance and the project team on IED implementation for the content of the guidance (factsheets, good practices). Horst noted that the guidance and the 28 factsheets will be added to the website of IMPEL.

Horst further noted that the next (combined) workshop DTRT and IED implementation will take place in October (Austria) with a main BAT in cement industry. Also, the workshop will be used to develop the cooperation with the DTRT project team and to decide what the best format is to continue the work together on the Guidance after 2018 (the DTRT project will finish end 2018).

Rob explained that, for the purposes of this meeting, he is replacing the project leader of the DTRT project team, Tony Liebregts. It is the third (and last) year of the DTRT project and they have been teaming up with IED implementation project in the second year. The Guidance is as good as finished. It is expected that more factsheets will need to be added to the guidance and the core structure of the guidance needs some further adjustments. There will also be links from the factsheets to the original reports of the working groups.

During the workshop in Lisbon a demo was given by Rob on how the guidance would look on the website of IMPEL. The workshop participants agreed with the proposed format for the internet. It will not be an interactive tool. During the summer a consultant will develop the pages for the website. The factsheets of the guidance will be in continuous development. After finishing the project, the next phase will be focusing on training and capacity building. The outcome of the Lisbon workshop was also shared in the General Assembly of IMPEL in June. During the GA the green light was given to develop Terms of Reference on the Knowledge and Innovation Centre. The ToR will be submitted to the GA in November for adoption.

3. Minutes from the meeting in Logroño

The minutes were agreed as a correct record subject to one addition. In section 1 (Background and progress of the IED Implementation project) the topics listed as discussed at the workshop in 2017 should include Joint inspections.

All of the actions had been carried out except that it was not known whether Chrystalla had sent the draft report on Horizontal Aspects in Permitting to Rob Kramers.

4. Topics and results from the DTRT workshop in May

Rob and Romano gave a presentation on the outcomes of the 1.5 day workshop in Lisbon. Three main topics were discussed in Lisbon:

1. The parts in the guidance that still need to be developed;
2. How an online version of the guidance should look like; and
3. How IMPEL should organise capacity building and training

Romano focussed on the results of Capacity building and training. A number of important documents (paper of COM, Survey of IMPEL and IMPEL next generation) has led to further exploration of this subject and put it on the agenda of IMPEL. The coordination of training will be within the expert team cross cutting. There are three main pillars for training: strategy, structure and a toolkit. On the pillar Structure, the development of an IMPEL Knowledge and Innovation centre is foreseen for the medium and long term. For each area within IMPEL a training needs assessment will be carried out. Ideas regarding human resources for the Knowledge and Innovation Centre were also discussed during the workshop in Lisbon. Trainers are part of the IMPEL network. There can be two levels: generic experts that can work at a general level and technical experts for each of the key areas within IMPEL. Train the Trainer will be an important part of the training centre.

Ideas on the development of a toolkit were also discussed. It could include: workshops, seminars, joint inspections, IRI, webinars, e-learning, exchange programmes. For the toolkit a new platform is needed (apart from Basecamp). Also, cooperation will be sought with other EU networks (Make it Work (MiW), Network of Prosecutors).

The next step for the development of an IMPEL Knowledge and Innovation centre is to draft the Term of Reference (to be adopted at the GA in December). The total duration of this IMPEL project will be 18 months. The IMPEL – MiW project Landfill and CE will be used as a pilot for the development of training courses. Also, IRAM will be used as a pilot for an e-learning tool. Romano further noted that during the workshop in Lisbon participants started with the inventory of training needs. The needs can be divided in specific skills (BREF, Seveso, TFS) and soft skills. The target group for training are divided between: a primary target group (IMPEL members, inspectors, permit writers, policy makers, lawyers) and a secondary target group (partner organisations).

Romano noted that the first pillar, Strategy, will also include a multi-year strategy on capacity building and training. This will include aspects like accreditation, funding, the role of the IRI and type of training.

Marinus noted that Government to Government communication is very important and agrees with the way forward as presented. Other important aspects to bear in mind for training are the cultural and languages aspects.

Horst added on the IRAM methodology that ISPRA will develop the e-learning tool this year. Kari noted that Train the Trainer is major target group in the first phase. Further translation of the guidance in different languages is important. Training should also be given in different languages.

Rob added that after the ToR is adopted by the GA at the end of November and the study on the feasibility of a Knowledge and Innovation Centre is started, IMPEL needs to continue with pilots, e-learning and training.

5. Reporting back from the General Assembly

Florin reported back from the General Assembly in June in Brussels. The main topic of the GA was the ECA initiative. It was decided that IMPEL will be involved in most of the actions, except for action 6 and 9 (technical guidelines for inspection of extractive waste facilities and assessing national environmental compliance systems), both of which were seen as too political. The green light was given for the development of the Terms of Reference for the Knowledge and Innovation Centre.

Furthermore, there was a discussion on how to involve people more in IMPEL activities which could sometimes be difficult to achieve. One possibility would be to translate some of the IMPEL products into several languages.

The importance of the findings of the project on the Implementation Challenge was recognised and there had been a discussion about how to use the findings and how often the exercise should be repeated.

6. DTRT/IED guidance on the internet

Rob gave a presentation on the Doing the Right Things (IED) combined guidance and how this will be put online. The core structure of the guidance is the stepping stones of the IED implementation and these will guide the user to the information and factsheets. Rob has developed a demo which was adopted in Lisbon by the cross-cutting team. The online tool should be ready before the IMPEL conference on 26 September in Zwolle.

Marinus noted that it is a good idea to test the guidance on the internet. During the project team meeting in October (Austria), a session will also be dedicated to test the website to see if all parts are well placed on the website.

Volunteers for testing the online tool are: Marinus, Deniss, Martine, Simon and Elisabete.

7. Missing parts in the guidance

An inventory had been made of missing parts in the guidance at the meeting in Lisbon.

5. Implementation of BAT conclusions in national legislation
6. Access to information and Public participation (Factsheet and/or good practice)
7. Access to Justice (Factsheet and/or good practice)
8. Actions as a result of complaints, accidents or incidents (non-routine inspections).
9. Climate change adaptation – or incident prevention because of severe weather conditions (Factsheet)
10. Setting priorities for permitting
11. Developing a work plan for permitting
12. Evaluation and feedback

It was difficult to identify non-compliance in routine inspections: it was easier to do this in non-routine inspections. The Environment Agency for England had produced a factsheet on incident prevention because of severe weather conditions which they would share with the group.

Other missing parts identified included:

1. Relationship between permitting and inspection
2. Baseline reporting
3. Preparation of inspections
4. Execution of inspections

8. Responsible person for the factsheets

It was decided that the following project team members of the IED implementation are responsible for the factsheets:

Part 2

- Factsheet 2.01 – Describing the context for permitting (Rob)
- Factsheet 2.02 – Applying BAT (Jamie)
- Factsheet 2.03 – Review of existing permits (Jamie)
- Factsheet 2.04 - Eco-innovations (Gabriëlle)
- Factsheet 2.05 – Relationship permitting and inspector (Martine)
- Factsheet 2.06 – Transparency and visibility (Caroline)
- Factsheet 2.07 – pre-application discussion (Caroline)
- Factsheet 2.08 - Baseline reports (Nadia)
- Factsheet 2.09 – Checking of application (Caroline)
- Factsheet 2.10 – Boundaries of installation (Jamie)
- Factsheet 2.11 – Cost benefit (Jamie)
- Factsheet 2.12 – Derogations (Jamie)
- Factsheet 2.13 – Translating AEL's to ELV's (Kari)
- Factsheet xxxx – Going beyond BAT (Jamie)
- Factsheet xxxx - Waste water management (Romano)
- Factsheet 2.14 – BAT Assessment (Jamie)

Part 3

- Factsheet 3.01 – Describing the context for inspections (Rob)
- Factsheet 3.02 – Impact criteria (Horst)
- Factsheet 3.03 – Operator performance criteria (Horst)
- Factsheet 3.04 – Risk assessment – IRAM (Horst)
- Factsheet 3.05 – Defining objectives (Rob)
- Factsheet 3.06 – Defining inspection strategies (Rob)
- Factsheet 3.07 – Inspection plan (Rob)
- Factsheet 3.08 – Training programme (Romano)
- Factsheet 3.09 – Preparation of inspections (Florin)
- Factsheet 3.10 – Execution of inspections (Marinus)
- Factsheet 3.11 – Operator Self-monitoring (Romano)
- Factsheet 3.12 – Level of non-compliance (Hartmut)
- Factsheet 3.13 – Cessation of operations (Florin)
- Factsheet 3.14 – Reporting of inspections (Marinus)
- Factsheet xxx – Tools (Wulf)

9. Preparation of the workshop in October

The workshop will take place in Eisenstadt, Austria, on 4-5 October. There will be a joint inspection of a cement facility in lower Austria on 3 October. The total attendance will be limited to one person per member country (plus a few other people). Those attending were invited to complete the questionnaire by the end of August. This would be a joint meeting with the cement project (and DTRT Permitting) so it would be helpful if some attendees had some knowledge of cement production.

Horst suggested that the first day should have the joint inspection and the DTRT project group meeting while the morning of the second day should be the joint meeting of the IED and the DTRT projects. The IED/Cement workshop would be in the afternoon and on the third day. Beside the working groups on BAT application in cement industry there will three IED working groups during the workshop: Industrial Waste Water (Romano), Joint Inspections (Marinus), and Various Aspects of BAT application (Jamie).

10. Scottish system of IED implementation

Although the United Kingdom as a whole has a high density of population there is a low density in Scotland with a concentration in the cities of the central lowlands (Edinburgh and Glasgow), the north east coast (Dundee, Aberdeen and Inverness) and the west coast (around Ayr). Scotland occupies the northern third of the island of Great Britain and has a population of 5,295,000 and a total area of 78,772 km^2. In addition to the mainland this includes over 790 islands. In terms of land use, 2.1% is built on, 0.9% is green urban, 26.4% is farmland and 70.7% is natural. The climate is temperate oceanic with very changeable weather.

Scotland is the largest petroleum producer in the EU (74.7 million tonnes of oil). In terms of renewable energy production, Scotland has 25% of the potential renewable energy generation in the EU. In 2017 it represented 68.1% of gross energy production and 30% of renewable energy is exported. The target is to fully de-carbonise electricity generation by 2032. There are ambitious targets for the reduction of greenhouse gas emissions with a reduction of 66% by 2032 and 80% by 2050 (with a 1990/95 baseline). The interim target was 42% reduction by 2020 (met 2014) and a new interim target of 50% by 2020. Farming is mostly barley, wheat, potatoes, soft fruits and dairy and beef, with some hill farming. The waters surrounding Scotland are some of the richest in Europe for fish: Peterhead is the largest white fish port in Europe and Fraserburgh is the largest shellfish port in Europe.

There are 1.4 million hectares of forest in Scotland (70% of the UK total). There are 126 whisky distilleries (plus bottling plants and many hundreds of bonded warehouses) and their production is 80% of Scotland's food and drink exports and 25% of the UK's.

SEPA is a non-departmental government body with 1,300 employees in 22 locations. The Regulatory Reform (Scotland) Act set out SEPA's Statutory Purpose. It states that SEPA must protect and improve the environment in ways that, as far as possible, create health and wellbeing benefits and sustainable economic growth. In simple terms this can be described as delivering environmental success in ways that also create social and economic success through their work.

The Statutory Purpose encapsulates the environmental challenges faced in the 21st Century – how to find innovative and powerful ways to regulate in such a way as to help society to tackle things like over use of natural resources and climate change in ways that also contribute to social and economic success?

SEPA has responsibility for permitting, inspection and enforcement for activities that may pollute air or water. They also cover waste storage, treatment and disposal, the keeping and disposal of radioactive materials, activities that may contaminate land and policy and interpretation and guidance of legislation. It also has Scotland's flood warning system and radioactive incident monitoring network.

SEPA'S Regulatory Strategy is to strongly tackle non-compliance and criminal activity while supporting those they regulate to meet their legal obligations and reach compliance quickly, easily and cost effectively. They also help as many of those they regulate as possible to move "beyond compliance". They will do this by combining the things they can do to influence the behaviour of a business with all the other influences on the behaviour of that business – such as industry standards. They support innovation, particularly innovation that helps move businesses or sectors beyond compliance. They are moving their interactions to the most senior parts of businesses as this is where the most important business decisions are made. They will develop "Sustainable Growth Agreements" with some businesses to focus on practical actions that improve environmental performance in ways that deliver business success.

They regulate for maximum benefit, using an integrated regulatory framework and other tools introduced by the Regulatory Reform (Scotland) Act and they are developing Sector Plans for their interactions with each sector they regulate. These will focus on practical ways of delivering environmental, social and economic outcomes and on bringing clarity about what SEPA expects of the sector and what the sector expects of SEPA.

This will help them to move beyond simple compliance and managing "standard outcomes". This will deliver only marginal improvements on the "three planet" living challenge. They will also aim to help businesses and sectors to grow in ways that create prosperity but within planetary limits, helping to move Scotland from three planet living to one. This should give Scottish businesses a strong competitive edge in global markets.

The Scottish Parliament was established in 1999 and the Scottish Government covers administration, policy and legislation. In addition to the already existing Scots Law there is also some responsibilities which are devolved (including Environment) and some which are reserved by the UK government.

IED in Scotland comes under the Pollution Prevention and Control (Scotland) Regulations 2012 with amendments covering the Energy Efficiency Directive and the Medium Combustion Plant Directive. IED activities are covered by PPC Part A which also includes some domestic activities such as sewage sludge drying. Part B covers lower risk domestic activities (emissions to air only).

There are 356 IED activities in Scotland (of which 114 either have no BREF or are a domestic activity). There are 105 Pig and Poultry activities and 44 Food and Drink. There are 44 Surface Treatment – Wood and 32 Waste Treatment. There are 31 Slaughterhouses and Animal By-Products industries, 23 Common Waste Water Treatment Plants, 21 Large Combustion Plants and 16 Waste Incineration Plants.

The principal regulatory issues with IED are Odour, Noise, Drainage (high rainfall), Storage/Containment – bunding, Resource efficiency, Waste transfers. For the BAT conclusions the issues are ageing plant and remote locations.

SEPA has a sectoral approach based on sector plans and which is focussed on practical outcomes. The sector leads are responsible for managing their sectors. In order to help businesses move beyond compliance there is increasing engagement at the most senior levels which is helping businesses to see the environment as a growth opportunity.

The integrated authorisation framework brought together SEPA's four main regulatory regimes namely water, waste, radioactive substances and pollution prevention and control (including IED). There is now a single permitting procedure and a single standardised procedure.

So far, SEPA, have published only three sectoral plans though they will eventually be published for all sectors.

SEPA encouraged operators to go beyond BAT and they sought to achieve support for this from industry by working through trade bodies rather than through individual operators. They then left it to the operators to see the benefits of going beyond BAT.

There is a SEPA call centre for dealing with complaints which is on call for 24 hours each day and which would respond within 24 hours. Over a year there are approximately 8,000 complaints. The response could be a call back or a site inspection. Standby officers are on call overnight who are able to take samples if necessary. SEPA is also responsible for enforcement and has recently acquired the ability to issue direct fines on offenders. There are lawyers in SEPA to help prepare cases.

11. Scottish approach to Article 15(4) derogations

An Article 15(4) derogation allows the setting of a less strict ELV that exceeds the BAT-AEL range and an Article 15(5) derogation allows for the testing and use of emerging techniques. It can be granted if site operations are not BAT and for a period of 9 months only.

A derogation may be granted under Article 15(4) Derogation if on-site operations are considered BAT (Article 15(4) derogation is not derogation from BAT). It is not to be considered an indefinite derogation from the BAT-AEL, but rather a temporary relaxation of the ELV. The operator must provide a justification together with firm plans to bring operations to within the BAT-AEL range (within an appropriate timescale). It has to be reappraised again at the next BATc review and the Operator may incur greater upgrade requirements in the future.

There are various considerations that need to be taken into account. Installations that may require derogation need to be identified at the earliest opportunity. The derogation assessment is not a quick process and the success of a derogation request cannot be guaranteed. Under no circumstances should it be presumed that an operator can just get a derogation. The derogation assessment is prescriptive under IED and there are a number of eligibility checks that must be satisfied before SEPA can consider derogation. It is for the operator of an installation to make the case for a derogation.

There are four stages in the SEPA methodology for derogation. Stage 1 is whether the installation is BAT since an installation must be BAT to be eligible for derogation. BAT is the core principle of the IED and derogation does not exempt an installation from BAT. Stage 2 is whether the installation is compliant with legal requirements. This is without prejudice to IED Article 18 (EQS). ELVs must not exceed the ELVs in the IED annexes and no significant pollution should be caused and there should be a high level of protection of the environment as a whole. Stage 3 is whether the derogation criteria are justified. There may be a disproportionately higher cost compared to the environmental benefits for the installation concerned due to the geographical location or the local environmental conditions of the installation, and/or the technical characteristics of the installation. Stage 4 is an assessment of costs and benefits: SEPA must assess whether disproportionate cost has been demonstrated by the operator.

There are two methods used for assessing disproportionate costs. The preferred approach is the quantitative assessment using a Cost Benefit Analysis (CBA) which compares monetised costs against monetised environmental benefits. The back-up method is the qualitative assessment which involves a Qualitative Derogation Assessment (QDAT) and compares the scoring of cost impact (BAT-AEL compliance vs derogation) against scoring of environmental effects. The tool and guidance are published externally and it is not a decision making tool but a decision support tool. It was developed for the UK and Ireland and Hungary are using it as well. It allows for a very detailed assessment of costs of compliance. Benefits are much more difficult, with the best assessment possible for NOx, SOx, PM10 and ammonia. In terms of the qualitative assessment of disproportionate costs, it is not possible to use the cost benefit analysis if there is no environmental damage. In those cases the qualitative derogation assessment (QDAT) can be used. It is based on existing SEPA methodology under Water Framework Directive (SEPA's Regulatory

Method 34 & Supporting Guidance 67). It is developed under shARE –a joint UK & Irish research project. The Consultants are AMEC Foster Wheeler.

The methodology assists competent authorities in making a balanced judgement on whether derogation is justified. There are two versions - emissions to air derogations (AMEC) and emissions to water derogations (SEPA). The methodology allows SEPA to make a considered expert judgement on disproportionate cost. Both parameters look at the scale of cost impact (BAT-AEL compliance versus the proposed derogation). The air parameters include the effects on well-being (health), biodiversity and climate change whereas the water parameters look at effects on health and safety, recreation, visual amenity, climate change and biodiversity.

The table below is an example of assessing the significance of climate change effects.

Importance of affected factor	**Magnitude of effect**					
	Negligible	**V Small**	**Small**	**Medium**	**Large**	**V Large**
Very low / negligible	N	N	N	N	N	N
Low	N	VL	VL	L	M	M-H
Medium	N	VL	L	M	M-H	H
High	N	VL-L	M	H	H-VH	VH
Very High	N	L	M-H	H-VH	VH	VH

Key:
N = negligible significance; VL = very low significance; L = low significance; M = moderate significance; H = high significance; and VH = very high significance.

For future work in this area, this is a developing field, both in terms of technical knowledge and decision-making expertise. The need is for a capability to assess derogation for any pollutant and the preferred approach relies on the availability of environmental damage costs. Environmental damage costs are not currently available for some pollutants and some research may therefore be needed to fill these knowledge gaps. SEPA is currently preparing a research bid on the development of water damage costs.

12. Scottish approach to major accidents to the environment (MATTE)

Leighanne Moir, Industry Unit Manager, gave a presentation on the Seveso III Directive and Environmental Risk Assessment. The Seveso III Directive (Article 18 and Annex VI) provides some guidance in the EC reportable major accident criteria. Immediate damage to the environment is defined as permanent or long-term damage to terrestrial habitats which is greater than 0.5 ha of a habitat of environmental or conservation importance protected by legislation or greater than 10 ha of more widespread habitat, including agricultural land. Significant or long-term damage to freshwater and marine habitats is where it affects more than 10 km of river or canal, more than 1 ha of a lake or pond, more than 2 ha of delta or more than 2 ha of a coastline or open sea. Significant damage to an aquifer or underground water is where more than 1 ha is affected. Damage to property is where in the establishment the cost is more than €2M or is more than €0.5M outside the establishment. Cross-border damage is where there are any major accident effects outside the territory of the MS.

There are problems with definitions. 'Major accident' means an occurrence such as a major emission, fire, or explosion resulting from uncontrolled developments in the course of the operation of any establishment covered by this Directive and leading to serious danger to human health or the environment, immediate or delayed, inside or outside the establishment, and involving one or more dangerous substances (Article 3(13)). 'Significant damage' and 'long term' are not defined. The important major accident scenarios for environment protection are fuel/chemical spillages and fires producing contaminated fire water causing pollution of rivers and groundwater.

The UK Government produced guidance on MATTE in 1999 which defined MATTE for environmental receptors including duration of damage. Environmental assessment uses a Source - Pathway - Receptor model. An assessment of severity and duration of harm to receptor is done by assessing the consequence of unmitigated process (no measure to control accident or consequences, for example, ignore bunding). If no MATTE scenarios – STOP: if MATTE is possible then an assessment should be made as to whether control measures are sufficient to ensure remaining risk is tolerable. Guidance and methodology are available at https://www.sepa.org.uk/regulations/control-of-major-accident-hazards-comah/ Work is ongoing to develop improvements to methodology to assess any disproportionate cost of control measures.

The Source-Pathway-Receptor works in this way. What could go wrong at the source and what and how much could get out? Where could it get to in the pathway? What would be the consequences for the receptor? At this stage the assessment is made with no controls or mitigation.

The risk assessment process involves identifying the hazards and the consequences and assessing the risk to the receptor. It is then necessary to determine what measures are needed to control or mitigate the risk. Verification is required to ensure that the necessary measures are put in place.

The methodology is to identify the scenarios which have the potential to cause a MATTE. For each scenario it is necessary to assess the severity of impact with no controls and a comparison is made to the table to identify the severity rating. Severity of harm is defined as significant (S1), severe (S2), major (S3) or catastrophic (S4). For each S2, S3 and S4 scenario an assessment is made of the duration of harm with no controls and a comparison made to the table to identify the duration rating. The tolerability threshold table is used to identify the consequence level and the relevant thresholds.

13. Status of the working groups and activities (some of these were also discussed in the breakout groups)

Waste Water from Industrial sites

Romano reported that the group was still working on the document. They intend to include a chapter on self-monitoring though this has still to be developed which it was suggested might include a template for the operator to use. This will need to be integrated with the Integrated Water Approach project being run under Water and Land in IMPEL. It was possible that the report from this group would be combined with that of the other IMPEL project. Horst thought it would take some work to produce a combined report, but it would be useful if that could be done (or at least include a short part on water re-use in our report). Horst added that the factsheet should also include a link to relevant reports.

Romano suggested that this could also be used as a pilot for training. This could also be a topic to be included in the IRI. The training could also look at what to do with the data analysis received from the operator and how to deal with violations identified from the operator's report and also how to collate data.

Following on from the breakout group, it was agreed that those in the group would look at the documents to see what was missing or needed to be updated in the future and this exercise should be completed before 10 September. A factsheet should be ready for the October meeting.

The group would also look at how training might be developed on this and proposals would then be put to the Training Group.

BAT Conclusions

Jamie said that there were interpretation issues on five or six interconnected issues. He had circulated a questionnaire with 28 questions and had received 10 responses so far. He would send it to other members of the project team and add some questions to give the context. In the October meeting it will be possible to decide what to do next in the light of the responses and he would also have a look at the FAQs produced by the Commission. It should be possible to share initial findings at the October meeting.

Horizontal aspects of permitting

This topic was discussed in one of the breakout groups. Simon would update the report which could then be submitted for final approval: the factsheet could be developed by end August/beginning September. There would be no need to have a working group at the workshop. They would try to identify good practice from what had already been submitted. Horst said that the report and factsheet would need to be submitted in good time to be adopted by the General Assembly. The factsheet could be sent to Horst, Rob, John and Terry. The draft guidance will be part of the report.

14. Report from the joint inspection

The Joint Inspection was on 19 June at A G Barr PLC, Cumbernauld, makers of the soft drink Irn-Bru which is the top selling soft drink in Scotland (unlike most other countries where it is Coca Cola). The company is rated as excellent by SEPA on the compliance assessment scheme for 2018. The inspection was conducted by Stuart Peat and Aidan Gilroy from SEPA and those taking part from the IED project were Hartmut (Germany), Malgorzata (Poland), Maria Jesús (Spain) and Susana (Portugal).

This was a Standard inspection and three sections of the permit were checked

-resources utilisation

-waste management

-drainage and bunding

During the site visit there was a discussion of the permit and reports required. There was a tour of the facility which looked at: Labelling and packaging; Filling; Cleaning and mixing; Boiler house; Tanks, silos, bunding and drains; and waste storage. The site looked very clean and the facilities looked good. The outcome was that there was no offensive odour on site, the bunding was okay and waste separation and storage were okay. Reports were not submitted on time and needed to be sent as soon as possible. There was a specific template for the resource utilisation report and a procedure for filling silos. Advice was given on the BREF and Medium Combustion Plant Directive. A minor Environmental Management Condition (EMC) non-compliance may be recorded for late submission of reports though this will not change the excellent rating.

The lessons learned were that the permit is detailed and comprehensive and that makes inspection simpler (detailed process description is in Decision Document not Permit). For example, conditions 2.1.1 and 2.1.2. require the operator to have an appropriate person as the primary point of contact with SEPA and to notify SEPA in writing if this is changed. SEPA requires information on raw materials (desirable) to make the balance between input and output, and to compare different sites in the sector. There is efficient reporting and communication with the facility along with reporting to the public.

EMCs allow SEPA to give the operator time to correct problems (for example, late reports). However if the corrective actions are not completed SEPA will then implement their Enforcement Scheme, for example, Warning letters or a report to the Procurator Fiscal. An important consideration is that in SEPA the inspecting officer controls the Inspection, Permit and Compliance Assessment Report.

The Operator had raised a question about what would happen after Brexit and SEPA had said that it still wasn't clear. The Operator should work on the assumption that the rules (including BREFs) would continue as now though the UK would cease to have a part in the process of preparing the BREFs.

Since IED was about emissions, the permit covered that (and included waste water discharges). Planning and construction were matters for municipalities. If a permit condition needed to be changed then that could be done quickly subject to the necessary resources being available. Where there was significant environmental impact it was necessary to go through the public consultation procedure.

The procedure for the compliance assessment scheme is on the website and the ratings are made public in June. This is seen as a way of naming and shaming and if an operator's ratings go down from excellent then the operator's charges are increased.

The reduction of energy use is a consideration in permitting. Every four years the operator is required to review energy use and efficiency (and resources used).

Marinus said that following on from the previous workshop on Joint Inspections there was a need for a procedure on how to deal with complaints and the public and also with non-compliance. Regulators would be asked about their needs and the expertise they have available. This would be discussed further at a working group at the workshop. A questionnaire is on the website and Marinus asked that it should be completed within two weeks.

Florin suggested that it would be difficult to look at operators with poor compliance but said that it would be useful to look at those who had moved from poor compliance to good compliance.

Marinus suggested that any further comments could be put on basecamp.

15. Results from the break out groups

Training

There had been ideas on possible topics for training before the Commission launched its ECA initiative. For example, there had been a suggestion on the minimum scope of IED inspections. Each country had different ways of carrying out inspections which would need to be taken into account. There had been a discussion at the IMPEL Board on training following the offer from ISPRA to use their e-learning tool and the proposal there had been to use it for IRAM Methodology. In the future the plan would for experts in this field to take on responsibility for developing the tool which would be especially useful given that e-learning packages can be time-consuming to prepare and to update.

Language could be a problem in training though the use of exercises helps overcome that. Where language might be a problem it could be useful to start with some definitions. There are also translation tools on the internet which translate automatically. It is possible to include exercises on e-learning though it is not easy to include an interchange. It was certainly better when using the internet for training to have someone speaking rather than expecting people simply to stare at a screen. The first step could be to offer the training in this way with a Webinar as a possible next step. FAQs should also be developed.

Vlado showed an example of a very simple training video he had prepared and it was agreed that this method would be followed up as well.

A useful way of identifying potential training requirements is the IRI.

Tools

The group discussed how to make the material in the report suitable for inclusion in the Guidance. They came up with some suggestions for minor changes which they would put to John Seager for his thoughts and would amend it in line with comments. The report and factsheet would then be ready for inclusion in the Guidance Book.

Baseline reporting

Fabio would shortly send the draft report to Horst. He would see whether he could make a factsheet from the report when it has been approved by the General Assembly.

16.Identification of good/best practice

Lorraine Hutt from the Environment Agency for England spoke about work that that Agency had been doing on the Integration of climate change adaptation into regulatory practice - ICCARP - and their proposal for a possible IMPEL IED Implementation sub-group. Industry and business are vulnerable to extreme weather events and the number of these is expected to increase with climate change. Environmental regulation in the future will require facilities to consider and be resilient to extreme weather. Regulators need to help businesses to adequately consider future risk.

During hurricane Harvey there was an explosion at a chemical plant in Arkama, Texas. An unprecedented 2 metres of water took out power to a refrigeration plant: with that level of water and no power it was impossible to prevent explosions and chemical releases. Following its investigation, the US Chemical Safety Board concluded that there is a greater likelihood of more severe weather across the country and it is critical that industry better understands the hazards posed by extreme weather events. They noted a significant lack of guidance in planning for flooding or other severe weather events.

The Environment Agency is committed to ensuring that all their permits and daily operational activities, projects and schemes take climate change into account by 2020. The ICCARP exchange project seeks to identify the extent to which adapting to climate change is integrated into the environmental permitting process across Europe and beyond with a focus on the Industrial Emissions Directive.

The Environment Agency had established a Steering Group and had drawn up a questionnaire to which 22 responses had so far been received from 16 countries. They wanted to find out more about what people are actually doing and thus achieve a better understanding of the challenge. They would like ICCARP to be adopted as a subgroup of the IED project, coordinated by the Environment Agency for England. There was good support for the proposal and Horst invited Lorraine to prepare a Terms of Reference. The topic would be discussed further at the Expert Team meeting in September.

17. IED project organisation

It was unclear at present how much money was left in the budget for the workshop. Horst would look into it with the IMPEL Secretariat.

Marinus kindly agreed to write a newsletter for the meeting which would include the family photo. Someone from Austria (as host country) would be invited to write the newsletter at the next meeting.

There are new rules for reimbursement of expenses. It is necessary to fill in a template form (which can be found on Basecamp) and then submit it to the project manager. Florin had agreed to act as project manager for these purposes and would ensure that the updated template was available.

As agreed, Horst had had a look at the project abstract and decided that no amendments were necessary at present. Any amendments could wait until after the conference.

There was a discussion about LIFE+ but, as at present, there were no volunteers to submit an application for funding from it.

18. Any Other Business

Vlado reported that Slovenia wanted to simplify its permits and requested that those countries with simplified permits should send examples of permits to him. He had a particular request for SEPA given that they identified two types of installation – A (IED) and B (less complex). He asked Jamie to let him have samples of permits from both A and B installations. Romano and Elisabete also asked to have copies of these permits.

Rikke raised a question on whether it was permissible to put lead earth into landfill sites.

Martine asked about steps taken before specific enforcement action was decided upon. Jamie said that SEPA did this on a case by case basis. Normally they might send an enforcement notice or a warning letter and if that did not produce the required results it would be for the inspector to decide what action to take next.

19. Location and date of the next meeting

As agreed the next meeting would be in Eisenstadt, Austria, on 4-5 October with the Joint Inspection taking place on 3 October.

Annex

List of participants

Doing The Rights Things (Permitting)

Rob Kramers, The Netherlands (chair)

Gabriëlle Kühn, The Netherlands (reporting)

Caroline Murphy, Ireland

Kari Pirkanniemi, Finland

Horst Büther, Germany

Jamie McGeachy, UK

Elisabete Dias Ramos, Portugal

IED Implementation

Horst Büther, Germany (chair)

Robert Gross, Austria

Olivier Dekyvere, Belgium

Martine Blondeel, Belgium

Annelies Baert, Belgium

Rikke Cochran, Denmark

Mette Lumbye Sørensen, Denmark

Silva Prihodko, Estonia

Jaako Vesivalo, Finland

Hartmut Teutsch, Germany

Martha Georgiopoulou, Greece

Halla Einarsdóttir, Iceland

Martin O’Reilly, Ireland

Roberto Borghesi, Italy

Romano Ruggeri, Italy

Fabio Colonna, Italy

Diego Angotti, Italy

Deniss Pavlovs, Latvia

Inese Kurmahere, Latvia

Simon Farrugia, Malta

Marinus Jordaan, The Netherlands

Malgorzata Budzyńska, Poland

Elisabete Dias Ramos, Portugal

Susana Pires, Portugal

Florin Homorean, Romania

Vladimir Kaiser, Slovenia

Cyril Burda, Slovakia

Katia Juárez, Spain

Maria Jesús Mallada, Spain

Senay Arslan, Turkey

Lorraine Hutt, UK

Aga Iwanicha, UK

Jacqui Lang, UK

Jamie McGeachy, UK

Ian McNiven, UK

Leighanne Moir, UK

Jason Sharp, UK

Terry Shears, UK (consultant – rapporteur)

Annex V.

Note of meeting on 10 September 2018 in the offices of ISPRA, Rome, to discuss the Italian e-learning tool and its possible use in connection with the IED

Those present:

IMPEL IED Project

Horst Büther

Vlado Kaiser

Terry Shears (Consultant)

ISPRA

Alfredo Pini

Daniela Antonietti

Beatrice Fernandez

Francesco Andreotti

Geneve Farabegoli.

Alfredo welcomed those present to Rome and specifically to the offices of ISPRA.

Horst explained the background to the meeting. IMPEL had already developed much material which could form the basis for training in the area of Industry and Air, notably through the projects on Doing the Right Thing (inspection and permitting cycles) and also on the IRAM risk assessment tool. A Guidance Book was being prepared from the project on IED Implementation and the intention was to make much of this available online through a training tool. This approach had had the endorsement from the IMPEL Board and the European Commission was also keen for more training to be made available.

Giuseppe Sgorbati had informed the Board about the training tool which had been developed by ISPRA. The Board agreed that IMPEL should explore the possibility of using this tool and Horst had been tasked to look it at it specifically for promoting IRAM.

In the ISPRA tool, there was a video synchronized with the PowerPoint presentation (specific software was available for doing this). The PowerPoint presentation had to be produced with the video. The advice was to avoid using animation if at all possible. Any suitable electronic device could be used for recording.   The maximum number for any one course was 100 though there was no limit on total numbers. At the end of the course there was an opportunity for feedback and evaluation. One of the requirements of e-learning is that there should be a known base of those who wanted to learn. IMPEL coordinators could act as the point for receiving requests to register for courses.

For future development of the training tool ISPRA would need more internal resources and they were using this as a finite project.

The module of the training course is the main topic and each module can have several learning units. Within each unit there should be a minimum of 10 slides and a maximum of 30 slides. ISPRA could assess the IMPEL course as necessary.

It would be possible to divide the course into trimesters so that people could access it at almost any time during the year (subject to a maximum of 100 per trimester). IMPEL would need to decide on the structure of training units and could consider then possibility of joint ISPRA/YouTube training programmes.

Alfredo would check whether it was possible to export the presentations.

Following the meeting, Horst, Vlado and Terry discussed the advantages and disadvantages of using the ISPRA training tool.

Advantages

1. The system is in place and provides a quick win.
2. Support is available from ISPRA in terms of knowledge and manpower.
3. There is a good structure for the video presentations.
4. Use of the ISPRA tool has the full backing of the IMPEL Board.

Disadvantages

1. The system is standalone and is time limited.
2. It is dependent on ISPRA for its continuation into the future.
3. Only simple PowerPoint should be used with the presentation: animation should be avoided.
4. The person presenting has to be presenting all the time so the presentation could tend to be fixed on the person.
5. Use of the tool is dependent entirely on ISPRA. Language questions might come up.
6. The tool requires a considerable amount of preparatory work that we were previously unaware of.

Whether or not the project was able to make use of the ISPRA tool it would in any event be helpful to make use of Phase 1 (Designing training course) as defined in the Pilot Project for the IRAM Training Programme.

1. Definition of course objectives – this would need to be done.
2. Identification of target learner and starting requirements – this would be an engineer with knowledge of the environment and environmental law, inspectors in EU countries with some knowledge and understanding of English.
3. Definition of main course topics - this would be based on what we have already.
4. Identification and involvement of teachers for each learning object – the priority here would be to identify the training units (e.g., Minimum Criteria, Inspection Cycle, IED) and then to identify the appropriate teacher(s).
5. Identification and involvement of experts for training project validation – this would be discussed at the meeting in Zwolle.

The structure of the training would be:

1. Inspection obligations for IED
2. Inspection cycle
3. IRAM
4. IRAM web application
5. Minimum scope of inspections

Attached are two documents circulated at the meeting. One is headed 'Pilot Project IRAM Training Course' and the other 'Guideline fore-learning training materials.'

PILOT PROJECT: IRAM TRAINING COURSE

Phase 1: Designing training course

- Definition of course objectives
- Identification of target learners and starting requirements
- Definition of main course topics
- Identification end involvement of teachers for each learning objects
- Identification end involvement of experts for training project validation

Phase 2: Implementation of training course

- Definition of detailed table of training contents (Modules and learning objects)
- Definition of Guidelines and template to carry out learning object and other support training material
- Development of Learning Object (L.O.) and other training materials
- Assessment training materials compliance with course objectives
- Assessment learning object compliance with e-learning format and standard
- Synchronization of L.O. (video lesson end presentation) and upload on platform of all training contents

Phase 3: Evaluation of training course

- Providing course for Team validation
- Feedback assessment
- Amendment to training contents, if necessary

Phase 4: Providing training course

- Learners registration on platform with personal account
- Monitoring an tracking of training activities
- Analysis of final feedback by learners

GUIDELINE FOR E-LEARNING TRAINING MATERIALS

1. General structure of e-learning courses

The courseware material is organised in **Modules**, the main topics of the course. In a course we can have more Modules.

Each Module is developed through different Training Unit (TU): the specific learning objects (L.O).

In each **Modules**, it is also possible to insert adjunctive training material related to the specific issues dealt with (such as technical sheets, guideline etc.).

At the end of each Module there is an **auto-evaluation test**, through which the learners can assess their level of knowledge reached on the topics studied. The test consists of multiple-choice questions.

Learners can pass the test only if they answer exactly at least 70% of the questions.

Learners can repeat test several times until they pass it.

For each attempt, learners can see the table of right and wrong answer. For each wrong answer there is a link that return back to the slide that must be studied again.

Only by passing the test is it possible to go on to the next Module.

2. Training Unit (T.U.)

Each **Training Unit** (TU) is a standalone lesson.
The training Unit is a Powerpoint presentation with a video where the teacher explains the specific subject.
In the TU it is possible to insert link to external documents and resources (websites, normative, scientific papers, etc.).
The TU are accomplished according to SCORM standard (Sharable Content Object Reference Model). In this way the TU can be shared with other E-learning platforms. For each TU It’s also possible to download the slides.

2.1 TU characteristics

- **Number of slide** : from a minimum of 10 to a maximum of 30.
- **First slide:** Course title. Name and number of Module and of TU, teacher's name and Institution
- **Main contents:** list of main topics. Font**:** Arial 18
- **Title of topic:** must be introduced at the beginning of each slide. Font**:** Arial 20
- **Text :** no more than 15/20 lines for each slide. Font Arial 16-18
- **Animations:** use animation only if it is necessary to explain text.
- **Link:** it is possible to insert link to external documents and resources (websites, normative, scientific papers, etc.).

3. Other support materials:

- Teacher CV
- A brief explanation on how learners can attend the training course
- Integrative documents to support learners (such as policy documents at European level)
- Table of main contents
- Entry survey, an ex-ante tool to collect: information about learners, their prior knowledge and expectations
- Learners feedback: learners were asked to complete questionnaire on training at the end of the course
- The participation certificate, available only to learners which have completed the training course and have submitted the feedback

4. Auto-evaluation test

At the end of each Module there is an auto-evaluation test, through which the learners can assess their level of knowledge reached on the topics studied.

The test consists of multiple-choice questions.

Learners can pass the test only if they answer correctly at least 70% of the questions.

Learners can repeat test several times until they pass it.

For each attempt, learners can see the table of right and wrong answer. For each wrong answer there is a link that return back to the slide that must be studied again.

Only by passing the test is it possible to go on to the next Module.

Annex VI

Note of the meeting on IED Implementation, BAT in the Cement Industry and Doing the Right Things held in Eisenstadt, Austria, on 4 and 5 October 2018 and IED/BAT Workshop

Action points

1.	John was asked to condense the IRAM training from eight to three points.
2.	The BAT project sub group (Jamie) would try to bottom out apparent conflicts in answers on BAT from different countries and attempt to identify good practice.
3.	The Industrial Waste Water sub group would look at Training in 2019 and would prepare a training module by the end of 2018.

Welcome and Tour de Table

On behalf of Austria, Armin Heidler welcomed the members of the projects to Eisenstadt. The projects represented the core business of IMPEL in that they were seeking to identify good and best practices and he was sure they would lead to good outcomes. He thanked the colleagues for Salzburg for their work in setting up the meeting and the colleagues from Lower Austria who had organised the joint inspection of the cement works.

Guenter Dussing from Salzburg extended a particular welcome to Tony and Horst who were steering the projects on IED Implementation and DTRT (Permitting) and who would be chairing the joint session of the meeting.

Horst thanked the Austrian hosts for their warm welcome and for all that they had done, in particular Salzburg and Lower Austria.

There was a Tour de Table in which those present introduced themselves.

Approval of the Agenda

The agenda was approved.

Minutes of Edinburgh meeting

The minutes of the meeting in Edinburgh were approved though Maria Enron said that she had not attended the meeting but was listed among those present.

DTRT/IED guidance on the internet – presentation and results of surf sessions

Tony and Rob gave a presentation on developments with the Guidance Book. The Guidance would be a combination of outputs from the IED and DTRT projects. Work was continuing on producing the factsheets and these would be included as an Annex to the Guidance itself. An online tool was being to make the Guidance more readily accessible. The Guidance itself was now more or less finished and a link was being built on the website of IMPEL.

A lot of work had been done by Jamie and Romano since the summer and documents would need to be adopted by the Expert Team before they could be included in the Guidance. The changes to the guidance book are set out below.

Part IV – Evaluation and Feedback

Factsheet 2.02 – Applying BAT (Jamie)

Factsheet 2.03 – Review of existing permits (Jamie)

Factsheet 2.10 – Boundaries of installation (Jamie)

Factsheet 2.11 – Cost benefit (Jamie)

Factsheet 2.12 – Derogations (Jamie)

Factsheet 2.13 – BAT assessment and setting conditions

Factsheet 2.14 – Adaptation in permitting because of severe weather (new)

Factsheet 3.08 – Training programme

Factsheet 3.11- Operator Self Monitoring

Factsheet 3.15 – Monitoring Waste water (new)

Factsheet xxx - Going beyond BAT

IED Implementation would be explained by using the Regulatory Cycle (Legislation-Permitting-Inspection/Compliance Assurance/Enforcement-Evaluation and feedback-Legislation). The content of the guidance would be two pages per step (web pages) with references to factsheets, good practices and IMPEL reports.

Capacity building and training would be very important for IMPEL in the future. The Consultants 'Milieu' had been appointed by the Commission to develop a strategy for capacity building and training that would form part of the multi annual work programme 2019-2025. The Board would make its decision on whether to go ahead in May 2019 and, if it did go ahead, three Working Groups would be established by June 2019. These would cover the Multi Annual Strategy, the Knowledge and Innovation Centre and the Toolkit.

The conditions that will be applied to the IMPEL e-learning tools are:

- It's not necessary for IMPEL that participants finalise a training with a test
- It's not our aim (at this point) that the participant will receive a certificate
- The training or module will always be part of a bigger structure.

- It is not necessary for a participant to run all the modules, but work more with a menu à la carte (only what is of their interest at that moment)
- The module should be open for everybody, no registration necessary
- Every module will show clearly what the participants can expect (target group, training target and total time of the training)
- The training module should be online (text from a guidance) completed with videos.
- Videos (stored in YouTube or Vimeo) could contain speakers, on-site situations, presentations with voice over or animations
- It should be possible to insert links to other training units of external documents
- It should be possible for participants to leave their comments or to fill in an evaluation
- Animated PowerPoint should be possible.

There was a draft factsheet on Tools which, though it had still to be edited, should be ready by the end of the year. The report on Baseline Reporting had still to be completed but when it was adopted there should be a factsheet on that. Rob had overall responsibility for maintaining the guidance, but individual pieces of guidance and factsheets should be allocated to people responsible for them to be kept up to date. Factsheets will have a date and version number which will help potential users to decide the worth of the content. It would be useful to know who is using the tool and to have feedback from them on their views about it. It would be possible for member countries to add good practices, but the factsheets were IMPEL's responsibility and needed to be adopted by the Expert Team.

Online guidance as training material

It had already been agreed that an e-learning tool should be developed for IRAM. Horst, Vlado and Terry had visited Rome to see the tool developed by ISPRA and to discuss it with colleagues there. The ISPRA tool was very advanced, indeed possibly too advanced for the sort of self-learning being proposed in this project. Horst suggested that it should be possible to make videos on risk assessment which could be on the website though hosted by a third party. It would be kept simple but there would be a need to experiment to find out what worked best.

The IRAM training would be in three parts:

- Why risk assessment?
- IRAM methodology
- IRAM tool used in practice.

John had already prepared IRAM training in eight parts and was asked to condense it to three parts.

DTRT project was ending but there would be a need to develop guidance and to provide training on the use of the guidance. Under the proposed new funding arrangements other IMPEL projects would also need to take training on board to promote their findings.

This had been discussed at the workshop in Lisbon and the knowledge and innovation centre had been proposed. Training and capacity building were the focus of Point 2 in the ÉCA initiative which was in particular addressed to IMPEL.

The financial structure of IMPEL would need to be adapted to the new proposed arrangements, subject to agreement with the new structure. There would be funding for overheads (such as the secretariat, conferences and board meetings) and also programme funding for project work where the level of Commission funding would depend upon the types of projects involved. There was a question about how to bring together and manage projects under the new arrangements and Rob and Romano were seeking to make a structure to be presented in a ToR.

Among the constraints for IMPEL would be the overall priorities for the network and, more particularly, the capacity of the network to manage and run new projects. The consultants 'Milieu' had been assigned the task of helping IMPEL to develop a work programme: their assignment ran from July 2018 to July 2019. Project leaders will steer Milieu and help develop the strategy which should be ready by December 2018 and it would include a project on capacity building and training.

The aim will be to have a Multi Annual Work Programme covering the period 2019-25 which will include funding and with appropriate Working Groups defined. The IMPEL Board was due to take a decision on whether this would go ahead in May 2019. The plan would be to have three Working Groups (in place by December 2019):

1. Multi-annual strategy

2. Knowledge and innovation centre

3. Toolkit

The scope of training needs would not be defined simply in terms of information already developed but also the information that would be further developed. In addition, other networks such as those for prosecutors and judges would also need to be involved and of course it would be important to decide which are the topics on which training is required. Given the new funding arrangements and the new strategy it would be important to check whether other networks might be involved in capacity building and training. The knowledge and information centre would be very important.

Member countries already had their own national and regional training plans and there was a question over how this training would fit with those. National training plans would continue and the Knowledge and innovation centre would be able to give support to them. There were several training initiatives from old IMPEL projects and these would help to get things sharper when developing new training.

Terms of Reference 2019

IED Project 2019

The aim of the project was to achieve a level playing field in IED implementation through Identifying IED implementation gaps, learning from what other countries did and mitigation of non-compliance with the IED. It sought to achieve this through a common understanding of inspections and the develop of inspection tools. There should be appropriate public participation and the development of Good Practice examples with guidance and training. The project also looked at the application of BAT conclusions (cement).

In the period from 2015-2017 the project had achieved the following. The approaches to IED implementation in Bremen, Wallonia, Romania, The Netherlands, Flanders, Lombardia, Slovenia and Portugal were described. Implementation challenges were identified, and thematic working groups were formed with final results already being obtained from several of these groups. Some still had work ongoing and new groups had been formed as well. Site visits had taken place in Bremen, Rotterdam, Ghent, Milan, Ljubljana and Lisbon. Work had started on the IED Implementation Guidance Book and online guidance had been prepared together with DTRT. There had also been exchanges of experience.

In the 2018 work programme there had been presentations of Country approaches in La Rioja (Spain), Scotland and Austria and joint inspections in La Rioja (Oil Regeneration Plant), Scotland (Soft Drink Factory) and Austria (Cement Industry). The thematic working groups had continued and there had been a thematic focus on BAT in the Cement Industry. The IED Online Guidance had been taken forward and fact sheets prepared for permitting and inspection cycles. Fact sheets which were missing had been identified.

The IED Working Groups were on the following subjects:

- Application of BAT in the cement industry
- Self-monitoring and operator reporting

- Tools for permitting and inspection
- Definitions
- Horizontal aspects of permitting
- Joint Inspections
- BAT in Industrial Waste Water
- BAT (INCLUDING GBRs, Application of BAT in four years, and Narrative BAT)
- Risk assessment for site visits

The 2018 workshop looked at finalising the online guidance with DTRT, Cement (inparticular Terms and definitions, permitting, environmental inspections, use of waste), Industrial waste water, Various aspects of BAT Application and Joint Inspections.

Open IED topics included the following:

- Inspector's input into the BREF-cycle
- BAT / general binding rules
- Application of Emissions Ranges
- Concentrations versus mass emission limits
- Changes of permits – what is a significant change
- Streamlining IED and EIA permits
- Integrated permits (one stop shop)
- Control of VOC installations under IED
- Industrial soil and groundwater monitoring
- Non-routine inspections
- Public participation / complaints management
- Charging Regimes
- IED farming activities
- Climate change adaptation in IED permitting

The priorities for IED Implementation in 2019 would be practical IED Implementation with examples from host countries, examples of good and best practice, online guidance (factsheets and links to reports), training material developed from the guidance and capacity building (both e-learning and face to face).

Other IED projects in 2019 would include Joint IED Inspections (€29,900) as a spin off from IED Implementation and IED Farming Activities (€19,400) which had been identified as a priority implementation problem and would be similar to BAT in Cement industry. There would also be a project on Climate Change Adaptation in IED Permitting (€13,760) as a follow up from the 2018 questionnaire. France had asked for funding for a project on Lessons Learned from Accidents for which a meeting was due to take place in Rennes (€21,600). There would be another project on Onshore Oil and Gas (€20,000). It would be possible to combine these projects and the one on IED Implementation as a package over the next two years and the following four years.

The plan for IED Implementation in 2019 was to have two Project Meetings each with 25 participants and a workshop/conference with 30 participants. There would also be a training session with three trainers. The total planned budget for the IED project was €55,000 and the overall total with the other projects would be €159,660. Given that this was €70,000 above the budget for 2019 it was likely that projects would need to be merged and/or reduced in costs.

On Joint Inspections, the intention was to carry out 9-10 inspections (excluding July, August and December). There was a suggestion that there could be feedback from the Joint Inspections to those writing the BAT Conclusions. This was seen as a very good idea and it was agreed that the Cement Inspection would be a useful starting point. Finland was preparing a paper on issues in the Pulp and Paper industry and there may be similar projects in other countries.

Austrian approach to permitting and inspection

Guenter Dussing from Land Salzburg gave a presentation on the Austrian approach to permitting and inspection.

Austria is a federal state and the Government responsibilities are shared by three levels of territorial authority: the federation (Bund), nine provinces (Länder) and the communities. There is no general competence for environmental matters. Environmental provisions are therefore spread out in numerous laws and regulations at the federal and provincial level. Environmental responsibilities at the federal level are spread over several ministries and include air quality, water quality, waste management, industrial code (e.g. exhaust gas), energy, mining, traffic and transport of dangerous goods. At the Länder level environmental responsibilities include spatial planning, building law and heating systems, non-hazardous waste (partly) and nature conservation.

Most environmental laws are executed at the provincial and/or district level (for example, IED, Industrial Code and Water Act). For IED, intensive rearing of poultry and pigs is regulated and executed at the provincial level. One important principle in the federal Constitution concerning administration is the principle of legality which means that the administration is strictly bound in law and may only act in cases and the way foreseen by laws and regulations.

Permitting of IED Installations in Austria is done by the competent authority which is the Länder in 95% of IED Installations and the district authority in the case of intensive rearing of poultry or pigs. The operator applies for a permit by sending a project (documents and plans) to the authority. These documents are checked by different experts (mainly from the administrative body at provincial level), for example for safety, noise and vibration, waste gases treatment, waste water, waste management, radiation, safety at work, fire prevention etc. The documents will include a measurement report on noise emissions and a calculation of noise impact.

When all experts asked to check the documents have given the green light, the competent authority announces the hearing on site in which the public can participate. During the hearing all arguments such as those from neighbours must be discussed. Depending on the local situation (such as the neighbourhood, ambient air, smell, traffic, etc.,) additional requirements may be made which can be defined in the permit or else the specific document has to be modified. The permit includes the project as checked by the different experts together with all the conditions postulated by the experts and NGOs.

After the construction work for the IED Installation has been completed the operator has to inform the competent authority. The authority then announces an inspection on site with all experts involved in the permitting process. During the first inspection the IED Installation is checked by all experts to make sure that the plant complies with the project (by checking relevant parts and samples) in detail and whether the conditions are fulfilled. Where there are deviations or substantial changes in comparison to the project then there must either be some amendments or additional conditions in the permit, or a new hearing must be announced.

The Environmental Plan National EI-Plan 2014 includes the list of IED Installations. The plan describes the environmental situation in Austria including ambient air, water (river, lakes, groundwater), noise, soil and contaminated sites, waste and resources management and energy and climate change.

The national EI-Plan determines the procedure for Inspection Programmes which have to be done by the provinces/Länder. IRAM has been adapted for Austria and is only used for Environmental Inspections. Organisation of the EI according to the EI Programme is done by a coordinator for example, Salzburg) or an authority (for example, Vienna). Depending on the province/land, the EI on site is carried out only by experts instructed by the competent authority to do so or a whole inspection team including the authority.

Austria created some checklists for the EI on site only to help ensure that nothing is forgotten. BAT conclusions, baseline report, new legislation etc., are discussed during the EI. It depends on the individual case whether samples or photos are taken. Measurements such as waste gas and waste water are not done by the authority but in some cases on behalf of the competent authority. Depending on the province/land there is either an inspection report or a protocol of the inspection in the cases where the authority is part of the inspection team.

In Salzburg, a draft EI report is sent to the operator after eight weeks at the latest and the operator then has another four weeks in which to respond. The competent authority normally receives the final report within two months after the EI. It is up to the competent authority to decide what should happen in cases of non-compliance (warning letter, administrative court, etc). For reporting to the public, a short version of the EI report is made available to the public.

Status of the IED sub-groups

BAT Project Sub Group

Jamie reported that there had been about 13 responses to the questionnaire. The workshop had discussed the initial findings and the synthesis of results. The group wanted to try to bottom out the apparent conflicting answers on aspects of BAT from different countries and to attempt to identify good practice.

Waste Water Treatment

The Group had tried to complete the final report on Waste Water inspection. It would be included in the final report on waste water monitoring and re-use of industrial waste water. The report was now considered as concluded. The fact sheet would be the abstract from the report which could be included in the guidance when the text had been confirmed by the Expert Team. The Group had also had initial discussions on a basic training course with a focus on inspections. Another suggestion was to have a Joint Inspection at a Waste Water Treatment plant.

It would be possible to have desk training using different tools. They would like to look further into a training programme on an integrated water approach (re-use of water).

Next year, when the report has been approved, they would like to work on training and to find teachers which they considered would be the real barrier to their work.

Joint Inspections

The Joint Inspections were now looking into content as well as procedures as illustrated by the inspection of the cement factory. Marinus had circulated a questionnaire which sought to identify areas of need and areas of expertise (both general and specific) to see the extent to which it would be possible to match up the two. He had received 20 completed forms from 13 countries. The slide below illustrates the match well. The need is highest in the chemical industry and waste management which are also the sectors with the highest level of expertise available. The many different needs items were divided into six categories, namely: air, waste water, soil and groundwater, noise, odour and general. There were many questions about how to deal with complaints and how to take measurements.

2. What Sector?

(Question type: Multiple-choice, select many)

Answer	Amount	Percentage
1. Energy industries	6	30 %
2. Production and processing of metals	5	25 %
3. Mineral industry	5	25 %
4. Chemical industry	9	45 %
5. Waste management	11	55 %
6. Other activities	7	35 %
Number of respondents	20	

3. Please choose the sectors:

(Question type: Multiple-choice, select many)

Answer	Amount	Percentage
1. Energy industries	4	23.53 %
2. Production and processing of metals	4	23.53 %
3. Mineral industry	1	5.88 %
4. Chemical industry	7	41.18 %
5. Waste management	7	41.18 %
6. Other activities	7	41.18 %
Number of respondents	17	

Areas where regulatory authorities have identified needs for additional expertise and areas where regulatory authorities already have expertise.

The proposed way forward was to use the needs and expertise to build up a focussed inspection programme for 2019 and indeed the ToR proposal for 2019 had already been considered in the Expert Team. The project team had been set up and the plan was to have a Mutual Joint Inspection every 1-2 months starting in February. The project would be closely connected to the IED project.

Results from the Cement questionnaire

There had been 21 responses from 15 countries, though only 8 complete responses. Of those who had responded, eight were not present at the meeting. Others would be encouraged to give their responses in the Working Groups. Half of those who responded dealt with inspections and half with permitting. Thirteen were national, ten were regional and two were at a local level.

Joint Inspection at Lafarge Cement Facility Mannersdorf, Austria on 03.10.2018Joint Inspection at Lafarge Cement Facility Mannersdorf, Austria on 03.10.2018

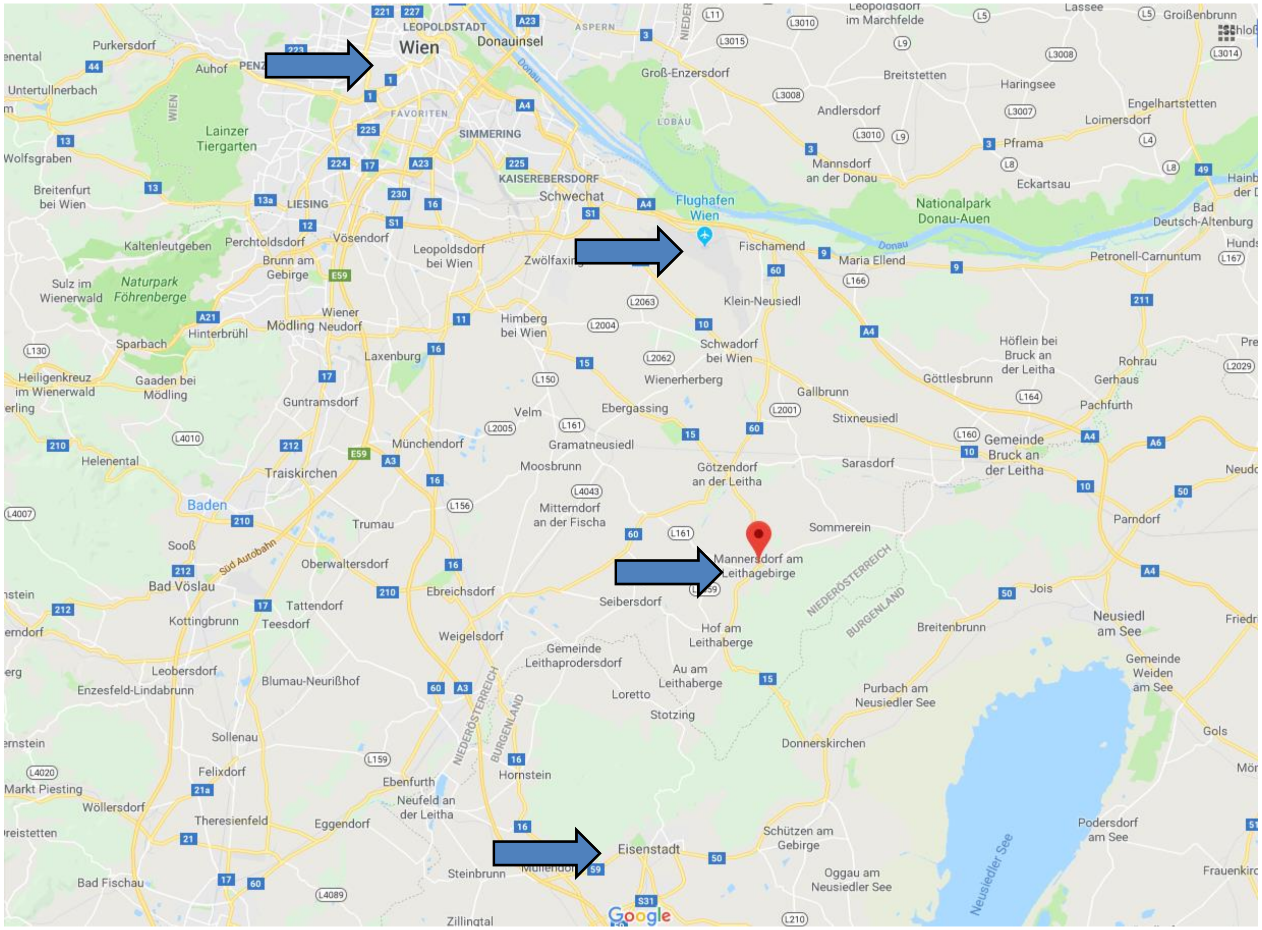
Inspection team

- Angelika Brunner (AT)
- Gerhard Ederer (AT)
- Ionel Preda (RO)
- Paul Stevens (UK)
- María Valero Gil (ES)
- Marinus Jordaan (NL)
- Eva Danova (SL)
- Csaba Hegedus(SL)

Characteristics of the installation

- Production facility located at the border of town Mannersdorf, Lower Austria
- Biggest cement production site in Austria, including clinker burning and cement production, including bagging and transport
- Raw material mining/quarrying nearby

Location of the installation



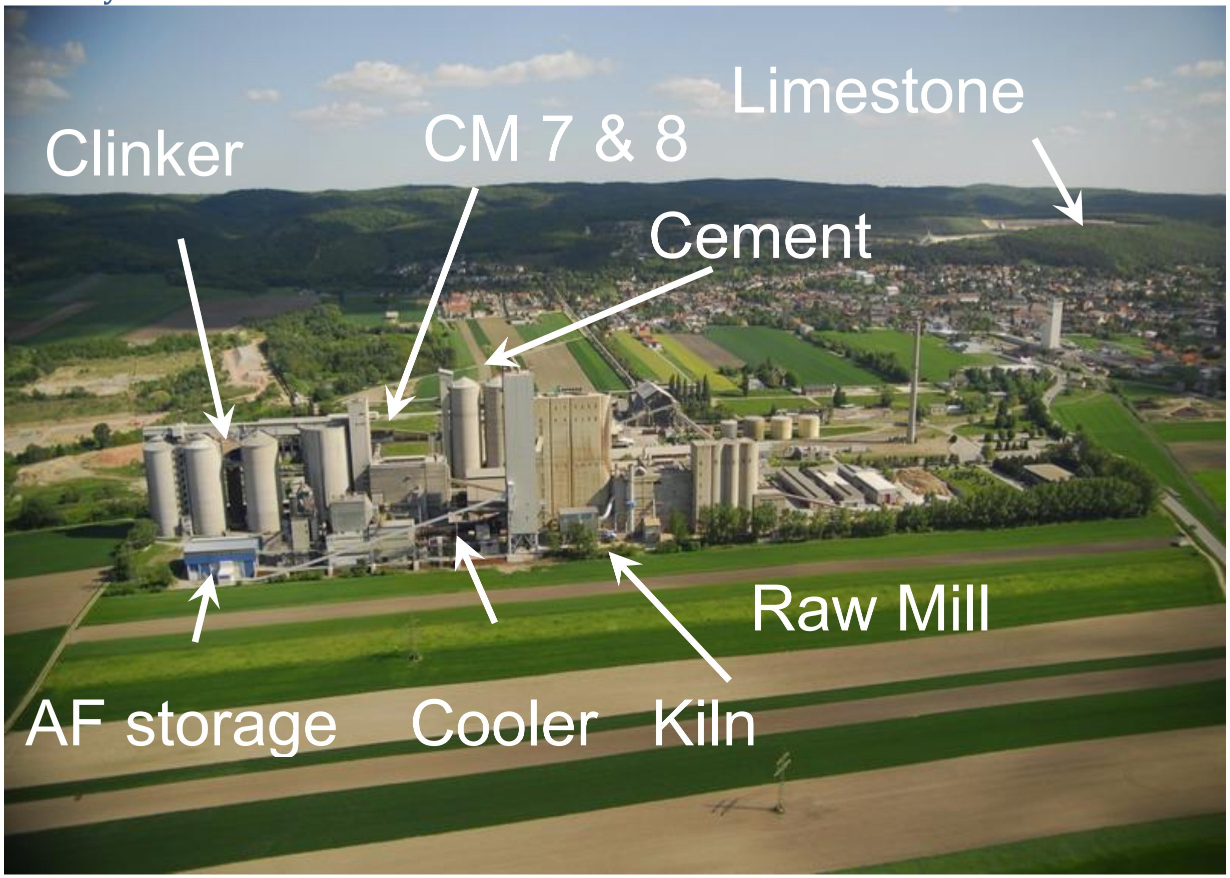
Classification of the installation

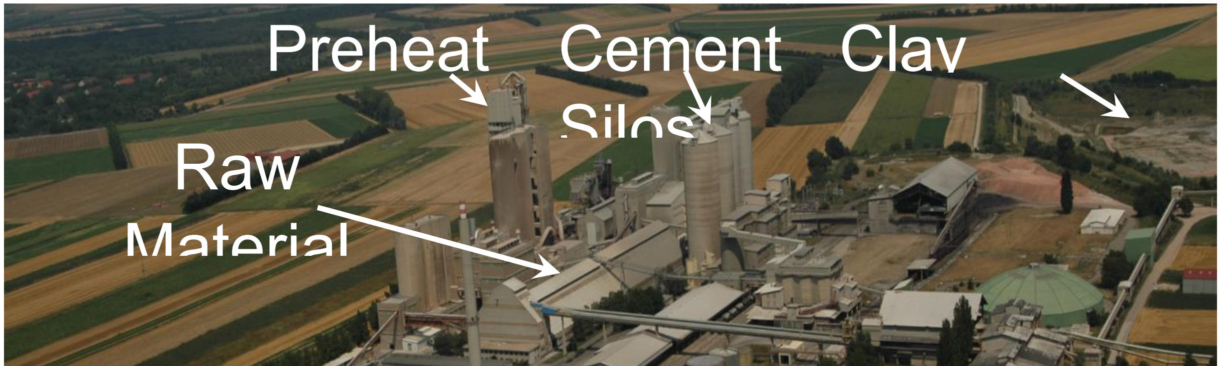
- Activities listed in Appendix I:

- 3.1 (a) Production of cement clinker in rotary kilns with a production capacity exceeding 500 tonnes per day […];
- 5.2 Disposal or recovery of waste in waste incineration plants or waste co-incineration plants: (a) for non-hazardous waste with a capacity exceeding 3 tonnes per hour;
  (b) for hazardous waste with a capacity exceeding 10 tonnes per day.

Location of the installation

Layout of the installation





Key Facts

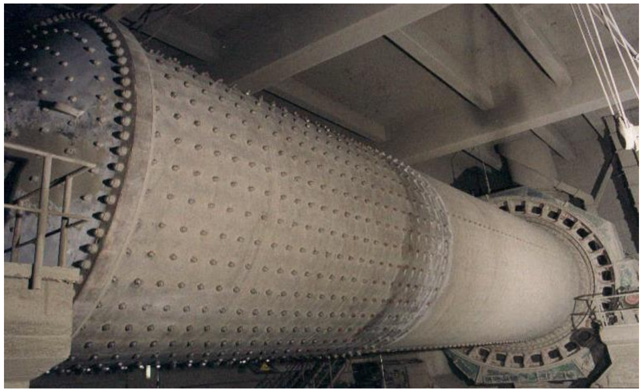
2 Cement Mills:
~60 t/h and
~115 t/h
(incl. Slag Dryer)

Cement Storage Capacity:
54,000 t (10 cement silos)

Chlorine Bypass:
5%, with exit gas to main stack

Alternative Fuels:
Storage Hall 4.500 m³, AF-rate at 85% (-0,4 €/GJ)

Alternative Raw-materials: ARM-rate at 15,3%



Capacity for clinker production 4000 tons per day (technical capacity)

Clinker Storage Capacity:
135.000 t (4 clinker silos)

Preparation of the inspection

- Preparatory meeting of the inspection team in the morning of 03.10.2018
- Documents used during inspection:
    - Summary of the permits
    - Process description
    - PRTR data
    - Summary of the findings of the previous inspections
    - BAT table –compliancedarf (Meldung des Anpassungsbes)
- Topics to be investigated - Focused points:
    - Use of waste
    - Air emissions
- Topics discussed:
    - Figures from PRTR Data base
    - Interval planning – IRAM system
    - Description of facility
    - Report concerning BAT conclusions

Questions from the Preparation of the inspection

- Topics to be investigated - Waste:
    - Waste management storage and mixing

- EWC codes
- Sampling of the waste check – On Site testing
- Types of hazardous waste
- Chlorine limits for the waste

Waste usage - alternative fuels

Waste is delivered in four groups:

- SSW – Solid shredded Waste
- Sunflower Shales
- ISF Impregnated solid fuels
- HCF – High Caloric Fuel

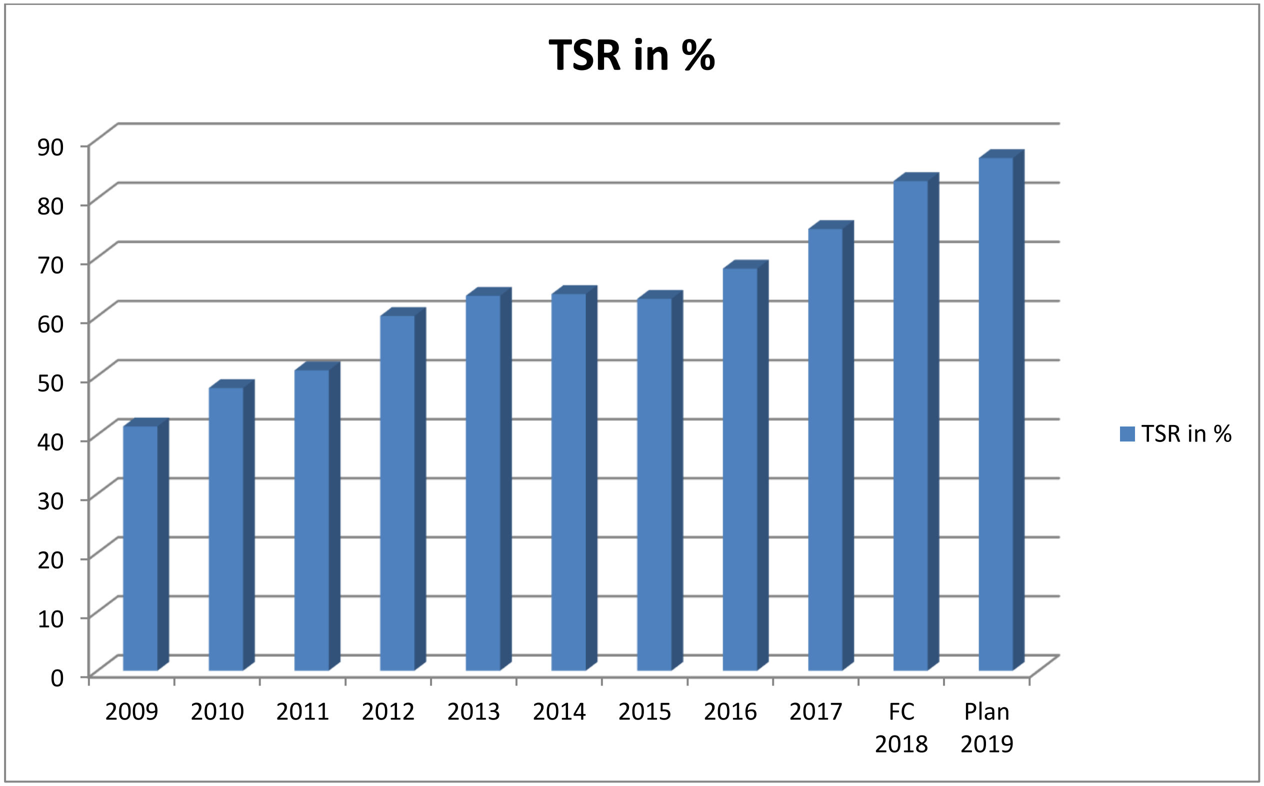
Waste usage - alternative fuels

Solid Shredded Waste

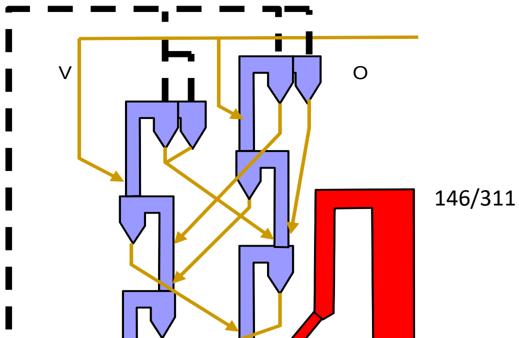
Sunflower Shales

ISF (Impregnated solid fuel) HCF (High Calorific Fuel)

Alternative Fuel rate since 2002



Waste usage as a fuel



Main burner:

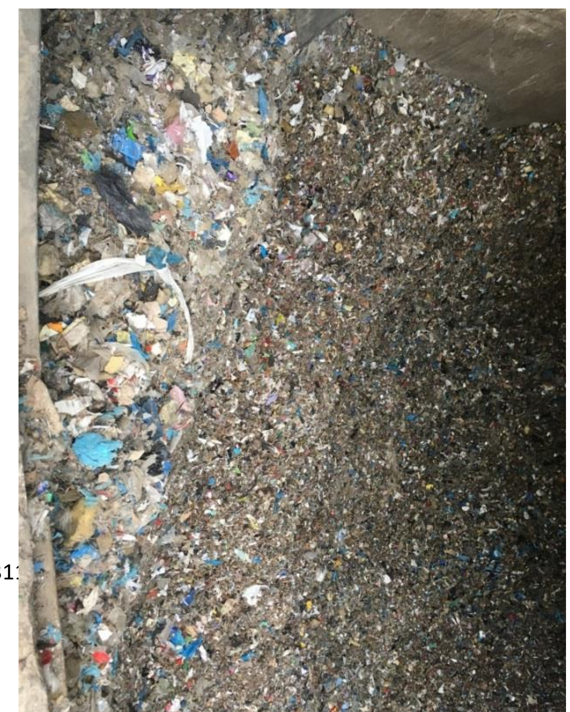
SSW fine, waste oil; solvents; tyre fluff; pet coke

Waste usage

2 Tube belt conveyors:

- 10 t/h to the calciner (lower caloric part)
- 5 t/h to the main-burner (high caloric part)

Waste usage – storage

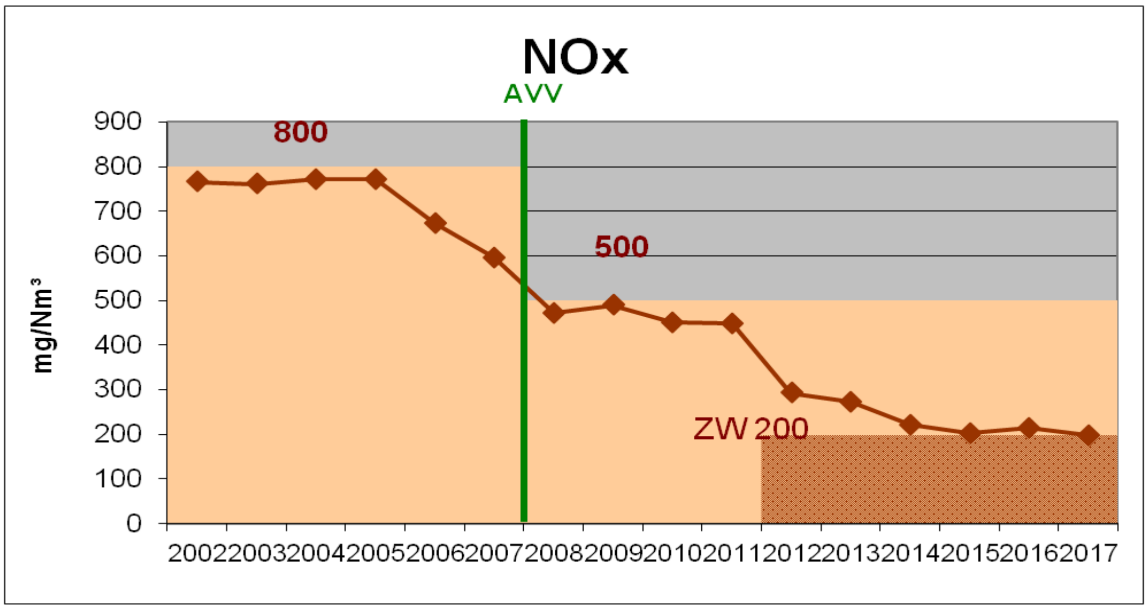


Questions from the Preparation of the inspection

- Topics to be investigated - Waste:
    - Waste management storage and mixing
    - Waste is delivered in four groups and stored according to the usage (kiln or calciner)
    - EWC codes internal code system for waste for usage (kiln or calciner)
    - Sampling of the waste check – On Site testing
    - Types of hazardous waste
    - Chlorine limits for the waste Permit after chemical and physical characterisation and testing
- Topics to be investigated - Emissions:
    - Raw mill on / off - effect on emission
    - Dust recycling
    - Dust measurement calibration

- NO_x before 2011
- Handling of activated carbon for mercury reduction
- Ammonia slip vs ammonia “normal value”
- Mercury control

Emissions NOx – since 2002

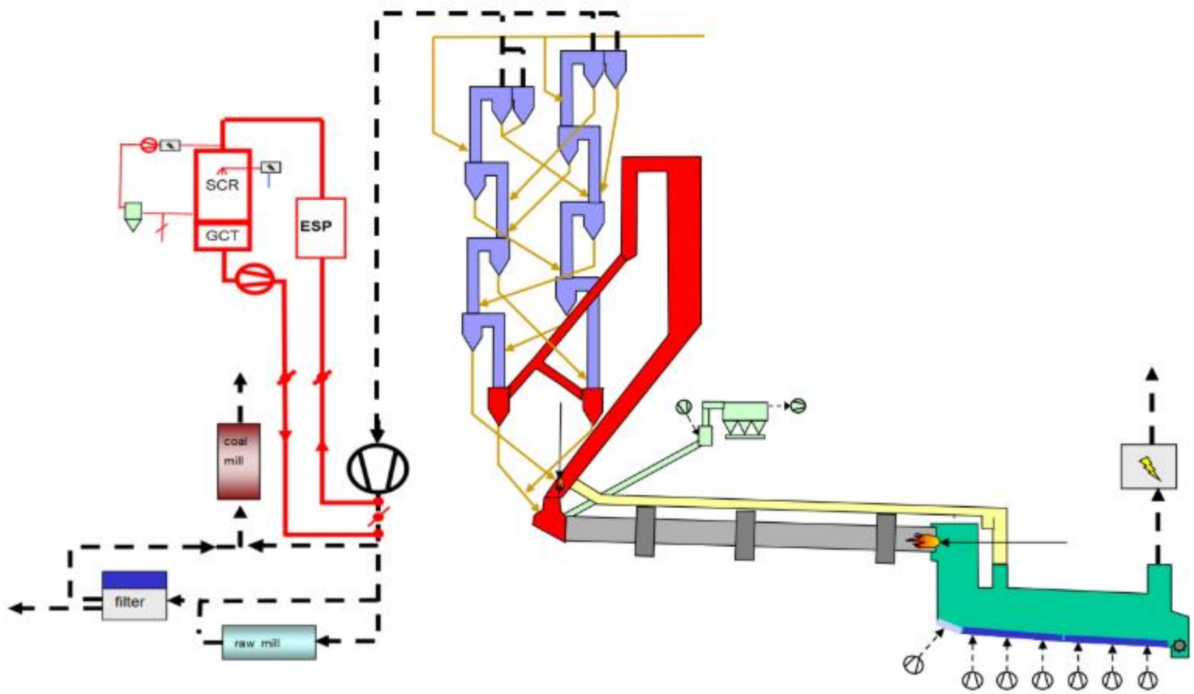


Werte in mg/Nm3

	2016	2017	Vorgabe
Grenzwert	200/500	200/500	
Messwert	**214**	**198**	
Anteil HMW > 1 GW	0,4 %	0,3 %	max. 3%/Jahr
Anzahl HMW > 2 GW	0	1	0
Anzahl TMW > 1 GW	1	2	0

HMW = Halbstundenmittelwerte, TMW = Tagesmittelwerte, GW = Grenzwert

SCR since 2012



Emissions NO_x SCR

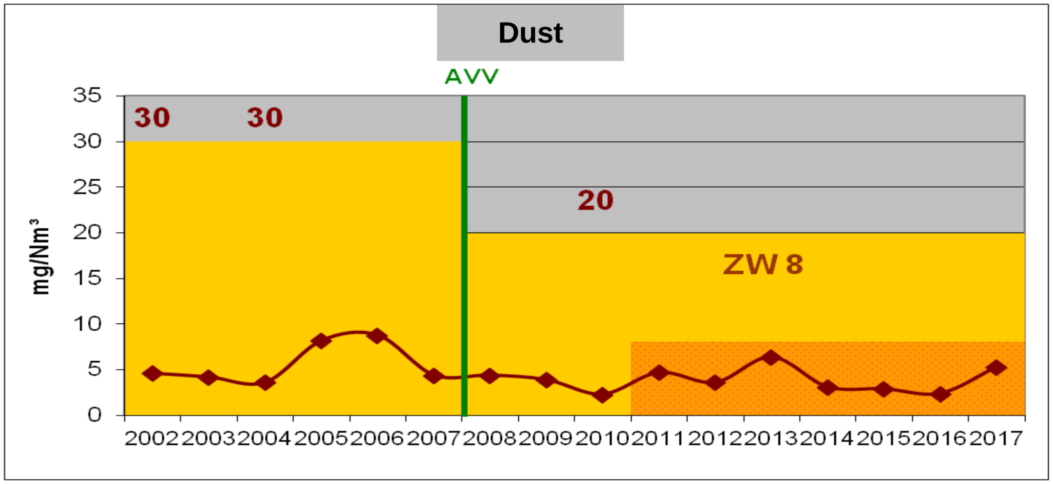
The catalyst: ceramic - based on titanium

- 75-80% TiO_2 as the main component
- 8-10% glass fibers
- 5-10% tungsten for thermal resistance
- 1-3% V_2O_5 as the active component

Emissions of Dust

Dust Emissions:

Kiln/Raw Mill Exhaust Gas

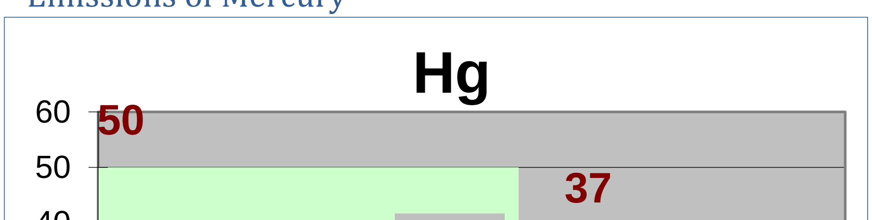


Werte in mg/Nm3

	2016	2017	Vorgabe
Grenzwert	20	20	
Messwert	**2,4**	**5,3**	
Anteil HMW > 1 GW	0,0 %	0,0 %	max. 3%/Jahr
Anzahl HMW > 2 GW	0	0	0
Anzahl TMW > 1 GW	0	0	0

HMW = Halbstundenmittelwerte, TMW = Tagesmittelwerte, GW = Grenzwert

Emissions of Mercury



Activated Carbon injected before last filter - gas/dust extraction after SCR

Werte in µg/Nm3

	2016	2017	Vorgabe
Grenzwert	AVV: 50	30	
Messwert	13	22	
Anteil HMW > 1 GW	0,0 %	0,7 %	max. 3%/Jahr
Anzahl TMW > 1 GW	0	0	0

HMW = Halbstundenmittelwerte, TMW = Tagesmittelwerte, GW = Grenzwert

Hg before SCR:

ca. 90% elementary – 10 % ionic;

Hg after SCR:

ca. 10% elementary – 90 % ionic;

Ionic Hg is adsorbed on carbon and filtered with dust filter (fabric fibers);

Activated Carbon injected after SCR - before kiln filter - gas/dust extraction

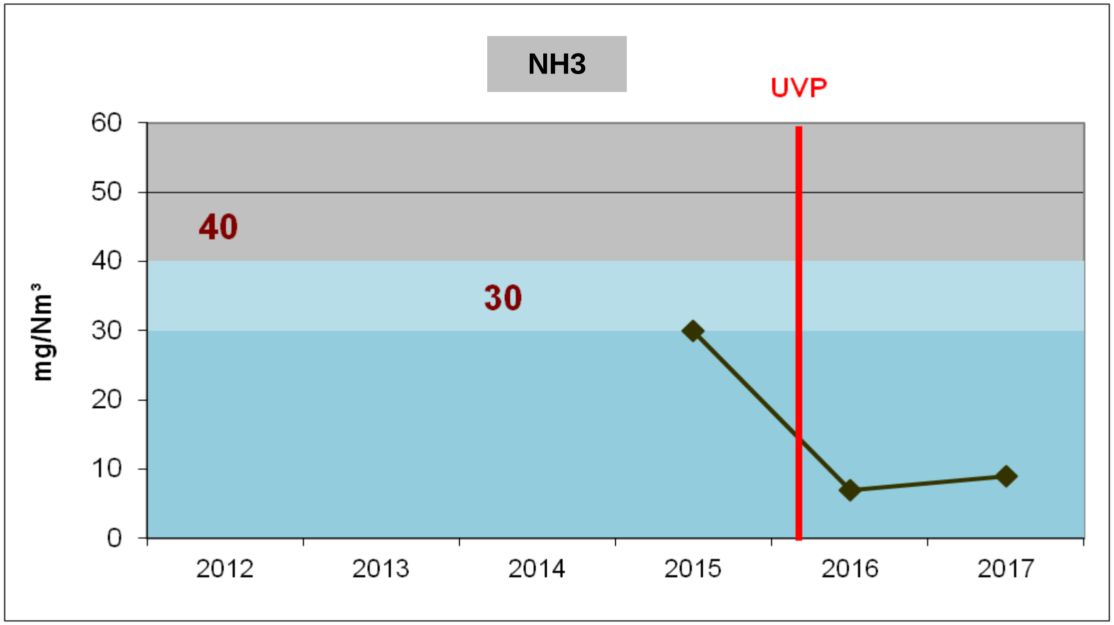
Dust from filter is recycled in the process and can be found in the product (end of dust – stabilized concrete);

In case of revision of SCR elementary Hg is increased – is not adsorbed and therefore set free!

Questions from the Preparation of the inspection

- Topics to be investigated - Emissions:
    - Raw mill on / off - effect on emission big effect – raw mill works like a filter; limit is untouched
    - Dust recycling (fully recycled)
    - Dust measurement calibration
    - NO_x before 2011 (chart)
    - Handling of activated carbon for mercury reduction
    - Ammonia slip vs ammonia “normal value”
    - Mercury control

Emissions of NH_3



Werte in mg/Nm3

	2016	2017	Vorgabe
Grenzwert	30/40	30/40	
Messwert	**7**	**9**	
Anzahl TMW > 1 GW	2	5	0

HMW = Halbstundenmittelwerte, TMW = Tagesmittelwerte, GW = Grenzwert

Questions from the Preparation of the inspection

- Topics to be investigated - Engineering:
- Kiln start – stop

- Breach of ELV that can be detected – how to switch off waste fuel
- Compliance of short stops
- OTNOC – other than normal operating conditions

There is an automatic system for shutting down waste input in case breaches of emissions levels - in practice it is difficult to handle

Major findings

- Use of waste
- Air emissions

Highlights

- SCR for Reduction of NO_x emission
- Activated carbon for Hg reduction

Findings

- Chimney rather short
- Half hour mean values and day mean values unusual – according to the permit
- Ammonia slip – difficult to set an ELV
- Bypass dust as a by product

Lessons learnt

- IRAM System for planning
- Good preparation is most important for good inspection (operators as well as inspectors)
- Good conversation – open discussion
- Good housekeeping – almost no dust outside
- Working together brings us closer together
- Implementation of BAT conclusions can be done in different ways (different legal systems)

Results from the working groups

Cement Group

In the workshop the results of the questionnaire were presented and discussed, and some additional information was added. The BAT-Conclusion is well known to all participants and is used as a basic document for permitting and environmental inspections. It was underlined that it is difficult to find a common way to regulate all cement plants in the EU mainly because of different local situations (whether there are residential buildings in the surrounding area, whether the ambient air is polluted, etc.) and different kinds of fuel/waste. The Mannersdorf inspection team made a presentation of the preparation and results of the environmental inspection on site. The main results led to a discussion about the use of waste as a fuel and raw material in the cement industry. The content and results of the workshop will be collected for a report on the project early in 2019.

Joint Inspections

There three were three possible candidates to host Joint Inspections, subject to confirmation: these were Poland (Waste Water Treatment Plant); Finland (Pulp and Paper); and Slovakia (Refinery). They also wanted to create a database on good practice in BAT implementation. The hope was that there would be funding next year for Joint Inspections.

Industrial Waste Water Treatment

The report had been drafted inspecting Industrial Waste Water Treatment plants and included a checklist. The final report is on Basecamp and comments had been invited so that it could be approved.

Most of the discussion in the Group had focussed on training courses, including target topics, toolkit and potential teachers. The teachers would need to be skilled (and voluntary). The training should be for inspectors and permit writers without professional competence. They wanted to make use of Joint Inspections and to make presentations at the Water Conference on different topics. It would also be possible to make use of the sub group to prepare some practical exercises. They would also start collecting videos and pictures of good practice and problems to have examples of actual experience in the field.

The sub group will provide a sketch of a training module for next year by the end of this year.

Any other business

Guenter thanked the project team and the inspection team for the cement project and especially Robert who did a great deal of work.

Location and date of next meeting

This would be agreed in due course.

Annex

Those present

Olympia Antoniou	Greece
Angelika Brunner	Austria
Malgorzata Budzynska	Poland
Horst Buether	Germany
Cyril Burda	Slovak Republic
Eva Daňová	Slovak Republic
Elisabete Dias Ramos	Portugal
Guenter Dussing	Austria
Gerhard Ederer	Austria
Maria Enrot	Sweden
Simon Farrugia	Malta
Robert Gross	Austria
Csaba Hegedüš	Slovak Republic
Armin Heidler	Austria
Florin Homorean	Romania

Preda Ionel Victor	Romania
Marinus Jordaan	The Netherlands
Helena Kamenickova	Czech Republic
Rob Kramers	The Netherlands
Ivo Lemšs	Latvia
Jaana Leppänen	Finland
Tony Liebregts	The Netherlands
Maria Jesus Mallada	Spain
Jamie McGeachy	UK
Martin O'Reilly	Ireland
Deniss Pavlovs	Latvia
Uzabela Tyrka Pettersson	Sweden
Kara Pirkanniemi	Finland
Silva Prihodko	Estonia
Romano Ruggeri	Italy
John Seager	UK (Consultant)
Terence Shears	UK (Consultant)
Paul Stevens	UK
Enis Tela	Albania

Peter Valentovič	Slovak Republic
María Eulogia Valero Gil	Spain
Jaakko Matias Vesivalo	Finland
Boris Žbona	Slovenia

Factsheet: 'Going beyond BAT'

This Factsheet summarises the guidance on 'going beyond BAT' that was developed under the IMPEL project, 'Supporting IED Implementation'. The project report for 2017[1] provides detailed guidance on this topic, supported by specific case examples from several countries.

1. What is 'going beyond BAT'?

The IED does not include any specific definition of "going beyond BAT". To understand what "going beyond BAT" is, it is recommended to have a closer look at the meaning of BAT. The core principle of the IED is to assess whether an installation meets the expected performance levels and achieves an ELV within the BAT-AEL range. This is done by comparing the performance of the techniques employed at an installation with the relevant BAT Conclusions (BATc) and its anticipated performance under normal operating conditions to achieve the BAT-AELs.

BAT is about the optimisation of site-specific performance. It may be the case that an installation has all the most modern technologies and abatement equipment, but if it is not operated or maintained correctly, the performance of this equipment is not optimised, and it may not be BAT. Similarly, an installation could use older technologies, but is operated in such a way that their performance is optimised and the results meet BAT for that installation.

[1] https://www.impel.eu/wp-content/uploads/2015/08/FR-2017-01-IED-Implementation-and-FR-2017-21-DTRT-Permitting-2017.pdf

The BATc do not define which techniques or technologies should be used by an installation. The practical suitability of particular techniques will vary on a case-by -case basis and will be site specific – dependent upon the technical characteristics of the installation, operational limitations, local conditions and any environmental outcomes that are necessary to minimise impact and protect the environment as a whole.

The BATc will contain BAT - associated emission levels (BAT-AELs). Typically, BAT-AELs will be presented as a range. It should be noted that due to the principle of optimisation where the BATc present a range of emission limits it is not appropriate to simply set the ELV at the top of the BAT-AEL range. The appropriate ELV from the BAT-AEL range is what protects the environment and can be achieved by the optimised performance of the installation when operating normally. This means that as part of the BAT assessment authorities must assess and ensure that site specific performance is optimised and can achieve the performance levels within the range of the BAT- AELs. If it is concluded as part of the assessment that site-specific performance is optimised, then BAT for that installation will be reflected by the emission levels associated with this optimised performance, and ELVs set accordingly.

2. Definitions of 'Going beyond BAT'

There are different views on what "going beyond BAT" actually means. The three main definitions are:

1. Any measure which is not explicitly defined within the BAT Conclusions. This approach involves the strict interpretation of the contents of BATc, meaning that any technique that is not expressly detailed has to be considered to be "going beyond BAT".

2. Any measure which exceeds the performance levels associated with the BATc, i.e. BAT –AELS and BAT-AEPLS. BAT, in terms of the BATc is quantified as any measure that can meet the BAT-AELS or BAT-AEPLs. Therefore, if a technique can exceed the anticipated performance levels identified in the BATc then this is going beyond BAT. It is acknowledged however that this approach restricts "going beyond BAT" only to measures that are within the scope of the IED and the BATc.

3. Any measure, including wider considerations that are outside the scope of the IED and the BATc. This approach while also encapsulating the definition in point 2, also allows the environmental regulator the flexibility to consider other measures, including social and economic issues.

Regardless of which definition is used, it is considered that where a “going beyond BAT” measure is incorporated in permit conditions or assessed as a part of the decision making process in granting or reconsidering a permit that it can subsequently become BAT. As a consequence, “going beyond BAT” has an ongoing value in identifying “developments in BAT” particularly where BAT conclusions are to be reconsidered. As a minimum, it is an essential part of the regulatory cycle to routinely consider measures outside the BAT conclusions and whether they can achieve performance either within (or better than) the BAT-AEL range. Going beyond BAT is essential for development of IED/BAT; otherwise BAT would be at a stand still.

3. Relevant articles in the IED

The IED includes four articles related to ‘going beyond BAT’.

Article 14 describes how permit condition must be set. It provides flexibility to include stricter conditions in permits.

Article 15(3) allows for competent authorities to go beyond BAT when setting emission limit values in permit conditions.

Article 18 requires competent authorities to include stricter conditions than BAT (to go beyond BAT) if necessary for compliance with environmental quality standards that apply to the location of the installation and its surroundings.

Article 27 requires Member States to encourage the development and application of emerging techniques.

What are the reasons to go beyond BAT?

Member States and authorities have highlighted that the following drivers as being the main factors for going beyond BAT:

Environmental Quality Standards (EQSs). National or local EQSs can have stricter limits, for health or environmental protection concerns, such that achievement of ELVs within the BAT-AEL range may not be sufficient.

River Basin Management Plans (RBMPs). The Water Framework Directive requires RBMPs to be in place so that all water bodies should meet good status. This may require that operators go beyond BAT in order to achieve the specific goals of the relevant RBMP.

Promoting emerging techniques. Environment regulators may need to proactively require operators to go beyond BAT to reflect Article 27 of the IED.

National Emissions Ceilings – Operators may need to go beyond BAT to ensure that emission reduction commitments under the National Emission Ceilings Directive are met.

Climate and resource use policies. Some member states have national or regional climate or resource use policies aimed at reducing emissions, the use of water, energy and materials, and the production of waste. This requires more innovative and collaborative approaches, potentially focusing on techniques that go beyond BAT.

How does going beyond BAT work in practice?

The mechanisms for 'going beyond BAT' are effectively very similar to setting conditions for BAT, following the normal steps of permit application, drawing up conditions, justification, public participation and decision. Sometimes industry is in the lead, sometimes the regulatory authorities.

In some cases, legislation on environmental quality standards and specifically monitoring data showing a possible exceedance of a standard is a reason for operators to send in a permit application that includes better performing measures than straightforward implementing of BAT conclusions. The same monitoring data provide the justification for competent authorities to set stricter conditions when deciding on a permit application or when reconsidering and updating an existing permit.

Besides the stricter permit conditions themselves, other conditions related to ‘going beyond BAT’ may be: additional monitoring requirements; the need to study feasibility of emerging or other better performing techniques; temporary exemption of BAT (article 15, para 5); and transition periods.

Annex VIII

Factsheet 3.11 - Operator self-monitoring

This Factsheet provides practical guidance on the requirements for the recording and reporting of the results of the monitoring of emissions from industrial installations by the operator. Proper monitoring planning, execution and reporting is a fundamental aspect of good operational and environmental management. It is essential for assessing environmental performance and compliance with the conditions set out in environmental permits. This Factsheet covers the requirements and provisions of the Industrial Emissions Directive (IED) concerning operator self-monitoring and how this is reported to competent authorities as part of the inspection process. particular, it addresses the minimum content of the operator self-monitoring report and the analysis and follow-up of the report by inspectors.

Recital 26 of IED states that*: "*In order to ensure the effective implementation and enforcement of this Directive, operators should regularly report to the competent authority on compliance with permit conditions".

Article 3 (22) of the IED Directive states that environment inspection covers all actions, including verification of self- monitoring.

Article 14 (1c) of the IED requires that conditions in environmental permits should include suitable emission monitoring requirements specifying:

(i) measurement methodology, frequency and evaluation procedure; and

(ii) where Article 15(3)(b) is applied, that results of emission monitoring are available for the same periods of time and reference conditions as for the emission levels associated with the best available techniques;

Article 14(1d) includes an obligation to supply the competent authority regularly, and at least annually, with:

(i) information on the basis of results of emission monitoring referred to in point (c) and other required data that enables the competent authority to verify compliance with the permit

Article 16 is about Monitoring requirements and states that "the frequency of the periodic monitoring referred to in Article 14(1)(e) shall be determined by the competent authority in a permit for each individual installation or in general binding rules. […] periodic monitoring shall be carried out at least once every 5 years for groundwater and 10 years for soil, unless such monitoring is based on a systematic appraisal of the risk of contamination conditions.

The JRC Reference Report on Monitoring (issued in 2018) summarises information on the monitoring of emissions to air and water from IED installations, thereby providing practical guidance for the application of the BAT conclusions on monitoring in order to help competent authorities to define monitoring requirements in the permits of IED installations. This BREF addresses general principles and other relevant aspects concerning the monitoring of emissions and associated parameters that are the basis for deciding on the monitoring approach and frequency, as well as on the gathering, treatment and reporting of monitoring data.

"Environmental self-monitoring" can be defined as the system of organisational and technical measures put in place and financed by regulatees subject to environmental permitting or general binding rules, in order to ensure their compliance with regulatory requirements.

Self-monitoring (including monitoring undertaken on behalf of operators by contractors) involves repeated measurements or observations, at an appropriate frequency in accordance with documented and agreed procedures, to obtain the required information on emissions. This information may range from simple visual observations (for example, visible emissions to air from doors, flanges or valves, or the alteration of the colour of a discharge) to precise numerical data (such as the concentration or load of a pollutant).

IMPEL has carried out a body of work to define minimum criteria for environmental inspections. This included guidance on operator self-monitoring[2] which stated that: "*The monitoring of industrial processes, their releases and their impact on the environment are key elements of regulatory control. Such monitoring may be undertaken by the competent authorities responsible for inspection duties. Industrial process operators may also be required to carry out monitoring themselves and report their results to the competent authorities. This is known as operator self-monitoring*".

The IMPEL project on supporting IED implementation included a working group that looked at operator self-monitoring reporting in 2016[3]. This guidance is based on the report from that group.

Minimum content of the operator self-monitoring report

Usually, the frequency for the operator to report self-monitoring data to the competent authority is set in the permit to be on a yearly basis.

[2] IMPEL report on Operator Self-Monitoring. February 1999.

[3] IMPEL report on Supporting Implementation of the Industrial Emissions Directive. Project 2016/1, October 2016.

The self-monitoring report is usually based on the content of the self-monitoring plan and/or the permit conditions. The required content of the report is often included in the permit, and, in some cases, there is also a template that sets out the required structure and content for the submission of the report. The monitoring report should include information about compliance with all permit conditions. Emissions monitoring results and waste management data are also necessary to comply with the Pollutant Release and Transfer Register (PRTR) register.

Effective reporting of self-monitoring involves the production of an Executive Summary, supported by the detailed monitoring results (raw data), relevant information concerning the operation of the specific process, and assessment of compliance with the required permit conditions. The raw data should be accompanied by a more detailed description and interpretation of the underlying process trends and conditions.

The self monitoring plan should content at least the following information:

- Data on emission monitoring: concentration and mass flow for each pollutant/polluting substances released into environment (Air, Water, Soil, Groundwater, Odour, Noise, etc.)
- Description of emission points (for each environmental compartment)
- The frequency for emission monitoring (monthly, quarterly, annually, etc.)
- Methods for emission monitoring (EU/national standards)
- Data on operation performance (waste production; energy, fuel and water consumptions) – annually
- Templates for reporting of data on emission monitoring and data on operation performance
- The frequency for reporting of self monitoring data.

There should be a direct link with the BREF on monitoring as well as with suitable sectorial BREF. The production of the following tools/templates is recommended to ensure consistent reporting of operator monitoring:

- Description of minimum content and frequency of the self-monitoring report
- Self-monitoring report templates
- Identification of the necessary data to comply with PRTR register requirements.

Although in some Member States the submission of paper copies, both of data and documents, may be a legal request for administrative procedures, the use of electronic formats is recommended over paper copies. The use of web tools is recommended that should have the following characteristics:

- They should allow the submission of raw data by operators and/or by the external accredited laboratories contracted by them using on-line templates

- Based on the raw data stored in them, they should allow operators to automatically elaborate, and submit the self-monitoring report
- They should include data validation procedures by the competent authorities
- They should be accessible to permit officers and environmental inspectors
- They should include controls to check compliance with the following items:
  - positioning of the sources (including graphic information, which means that a GIS would be required) as included in the permit
  - frequencies, sampling and measurement methods set in the permit or in the general binding rules
  - deadlines for the submission of the monitoring reports set in the permit
  - accreditation of laboratories for each of the sampling, measurement and analytical methods for all the parameters to be monitored set in the permit
  - ELV exceedances
  - Other aspects to be controlled in relation to monitoring such as relevant modifications of consumption of raw materials, water, power, reagents or performance and output indicators
- They should include tools for the analysis of the results and the elaboration of the reports by permit writers and/or environmental inspectors

Analysis of self-monitoring report to be performed by inspectors

A common approach has been identified and it is recommended that this should be applied to ensure that key components of the self-monitoring reports are included in the analysis. The assessment of the self-monitoring report submitted by the operator should usually cover the following aspects:

- whether the submission was in time and the frequency of reports meets the permit conditions
- the use of appropriate templates for reporting, if required
- the completeness of data and parameters required including frequency and extent of measurements
- the adequacy of the operator to self-monitor its emissions: whether measurements were carried out on-site or not, by the required person or institution (internal or external laboratories, with appropriate quality control, with certification or accreditation, if necessary), by appropriate sampling at specified locations, using appropriate analytical methods and instrumentation, at a clearly defined operation status of the installation
- a review of calculations and data reduction methods (especially in more complex reports)

The nature and scope of the analysis should include, as a minimum, an assessment of compliance with the emission limit values set out in the permit. It may also include:

- a check of overall compliance of the installation with environmental permit conditions
- an analysis of the trends in environmental parameters (e.g. material and energy consumption, emissions, amount of waste produced) in order to check the operational performance of the installation so that timely action can be taken to ensure that it continues to operate within the definition of BAT
- an assessment of critical conditions to be focused on in the next inspection
- a comparison of the performance of the installation with other installations in the specific sector
- a comparison of the performance of the installation with BAT.

Useful tools for the analysis are:

- appropriate templates for the assessment and reporting on self-monitoring reports to simplify and standardize the analysis
- use of a (national) database for the storage and exchange of the operator reports and of the assessment process (which may involve several experts)
- independent monitoring to cross-check the operator self-monitoring, e.g. by analysing samples taken during on-site visits, including split samples.

As far as the output of the self-monitoring report analysis is concerned, the IED has no specific requirements for the preparation of the report of the evaluation. Consequently, EU Member States use different approaches in the reporting of the results of the analysis of the operator's self-monitoring:

- some produce the report according to a standard template and others take a free-form approach,
- some produce the report as a separate document outside the site-inspection, and others incorporate the self-monitoring analysis with the reports from on-the-spot inspections,
- in some countries, the reporting of the evaluation is a formal requirement, but in others it is not.

In some countries, a report on the analysis of the self-monitoring report is produced only in cases where non-compliances have occurred. In others, a report is produced even if no non-compliances are reported or detected. In these cases, the document provides evidence that supports confirmation of compliance with the conditions of the permit and the requirements of the regulations (such as: compliance with ELVs and other required parameters set in the permit, operator monitoring equipment and regime, accreditation of laboratory, time limit for reporting, frequency of reporting, use of required template for reporting).

There are also differences in practice over the notification and release of the inspector's report to the operator and other competent authorities. In some countries, the inspector may only provide notification that the report has been produced (and that it may have been placed on an inspection database). In others, the inspector's report is submitted directly to the operator or to the competent authority.

Templates for report of the self-monitoring analysis have been developed in some countries.

Follow-up of the self-monitoring report analysis

The analysis of the self-monitoring report is useful to competent authorities:

- to check compliance with permit conditions, before going to a site for performing an environmental inspection;
- to plan a non-routine site visit;
- to review the environmental risk assessment of a plant;
- to verify data sent by operators to the PRTR register;
- to take decisions on interventions that might be needed to prevent environmental harm, such as suspension of the permit or suspension of operation;
- to provide the evidence to support the initiation of penal or administrative procedures against operators that have failed to comply with the law.

There are two different kinds of non-compliance reporting in the self-monitoring report: first, the non-compliance is reported by the operator and second, the non-compliance is detected and reported by the inspector.

For non-compliances identified by the operator, in most EU member countries, operators have to inform competent authorities immediately when an incident or accident occurs or when emission limit values are exceeded. The competent authority will stipulate what remedial actions need to be taken by the operator to return to a state of compliance and to resolve the problems that have occurred. In these cases, the self-monitoring report should include a compilation of the incidents or breaches that occurred and the remedial action that was taken over a fixed period (usually one year). This compilation can be used to support a new environmental risk evaluation.

For non-compliances detected by the inspector during the analysis of the self-monitoring report, there are differences in approach between countries in taking follow-up action.

Italy, for example, considers that the detection of exceedances of emission limit values in the analysis of self-monitoring reports is not, in itself, enough to open infringement procedures against the operator. The breach has to be assessed and evaluated by the operator or proved by means of evidence from the actual sampling and analysis of the emissions.

Other countries do take action and may prosecute operators on the basis of self-monitoring data.

In the follow-up of cases where non-compliances are detected through self-monitoring, inspectors should take into account at least the following criteria:

- Whether the non-compliance is reported by the operator or detected by the inspector through the analysis of the self-monitoring report.
- The level of the non-compliance.
- The assessment of the reason for the breach (through a site visit or by requesting further documentation).

Annex IX

Factsheet 3.10 – IT tools to support IED implementation

This Factsheet provides guidance on different IT tools that can be used to support the meeting of the IED requirements concerning environmental inspections. It also assesses the pros and cons of using handheld electronic devices in inspections. Finally, it describes a framework for the efficient use of IT tools.

IT tools for IED-requirements

The IED sets out different requirements, for example, the risk assessment of IED-installations, that are performed by the competent authorities with the help of IT tools. A questionnaire was developed to identify the current use of and need for tools in member countries. On the basis of the responses, the Tools group developed recommendations and these are provided at the end of the description of each tool.

The particular tools are:

1. A tool for the risk assessment of IED-installations (Article 23 para 4)
2. A tool for the drawing up of the annual inspection programme (Article 23 para 4)
3. A reminder tool for required actions (inter alia Article 7 c)
4. A tool for creating a report and publishing it (Article 23 para 6)
5. A tool for creating a list of installations (Article 23 para 3 c)
6. A tool for the storage and assessment of emission monitoring results (inter alia Article 14 paragraph 1 c)

7. A tool to make available to the public the results of emission monitoring (Article 24 paragraph 3 b)

1. A tool for the risk assessment of IED-installations (Article 23 para 4)

Legal basis - Article 23 paragraph 4 IED

The period between two site visits shall be based on a systematic appraisal of the environmental risks of the installations concerned …

A tool for risk assessment provides the basis for optimising the efficiency of the inspection plan. In fact, it establishes objective criteria to determine the most appropriate inspection frequency for each IED facility.

The IMPEL-project *easyTools* developed in 2010 the IRAM-principles and also a corresponding web-application. In many countries and regions this tool has become the standard tool for risk assessments not only for IED-installations but also for other environmentally relevant installations, for example, waste water treatment plants. Some countries do not use the tool itself but just apply the principles. For details see factsheet 3.04.

The tools group recommends: the use of the IRAM-tool or at least the IRAM-principles

(https://www.fms.nrw.de/lip/authenticate.do). Current guidance is linked with the IRAM-homepage to explain how to work with the IRAM-TOOL.

2. A tool for the drawing up of the annual inspection programme (Article 23 para 4)

Legal basis-Article 23 paragraph 4, IED:

Based on the inspection plans, the competent authority shall regularly draw up programmes for routine environmental inspections, including the frequency of site visits for different types of installations.

The inspection programme for routine environmental inspections for different types of installations shall be based on a systematic appraisal of environmental risks. Based on risk assessment, the inspection frequency will follow the rule highest risk first and will be each year for the installations posing the highest risk and every three years for the installation posing the lowest risk.

The tools group recommends: the use of the IRAM-web application that can easily be used to create the annual inspection programme. If a standard data base has to be used for that purpose the IRAM-tool should be embedded in that data base in a way that inspectors have to enter the data once only.

3. A reminder tool for required actions (inter alia Article 7 c)

Legal basis:

Article 7 Incidents and Accidents: *… in the event of any incident or accident significantly affecting the environment, Member States shall take the necessary measures to ensure that (c) the competent authority requires the operator to take any appropriate complementary measures.*

The regulation requires the authority to make sure that action is taken upon an incident or after non-compliance, however, it does not specify how. It is important that the inspector uses a reminder system that prompts the necessary action to be taken.

The tools group recommends: To ensure that a reminder is seen it should work as a pop-up or as an e-mail. A reminder function should be integrated into a database or another program that is accessible to all inspectors and is used regularly, for example, ‘Outlook’.

4. A tool for creating and publishing an inspection report (Article 23 para 6)

Legal basis – (Article 23 para 3 c)

Following each site visit, the competent authority shall prepare a report describing the relevant findings … The report shall be notified to the operator concerned within 2 months of the site visit taking place. The report shall be made publicly available …

The tools group recommends: the use of a data base where on the basis of the inspection data inspection reports are created, uploaded to the database and made publicly available (normally on the homepage of the authority) and/or are sent it to the operator. The report created from the basic data should be editable.

5. A tool for creating a list of installations (Article 23 para 3 c)

Legal basis (Article 23 para 3 c)

Each environmental inspection plan shall include the following:

(c) a register of the installations covered by the plan;

The tools group recommends: the use of an IT tool for drawing up a register of the installations. A proven concept in practice is to extract the necessary data (normally reduced) with a standard function for the list of installations out of the basic data base of installations. The basic data base should be updated regularly (at least once a year).

6. A tool for the storage and assessment of emission monitoring results (inter alia Article 14 para 1 c)

Legal basis (Article 14 para 1 c)

Member States shall ensure that the permit includes all measures necessary for compliance with the requirements of Articles 11 and 18. Those measures shall include at least the following:

...

(c) ***suitable emission monitoring requirements*** *...*

Aim of the regulations

The aim of the abovementioned provisions is to make sure that competent authorities are provided with the results of emission monitoring so that they can verify compliance with the permit conditions, compare the results with the emission levels associated with the best available techniques and to use them when reconsidering permit conditions.

The tools group recommends: the setting up of IT tools for the storage and assessment of emission monitoring results. The group also recommends the use of web-enabled solutions to enable operators to upload all self-monitoring results and inspectors to consult or download all data in spread sheet format for the assessment of self-monitoring results. Reminders for monitoring deadlines are recommended as well as alerts for ELV exceedances.

7. A tool to make available to the public the results of emission monitoring (Article 24 para 3 b)

Legal basis (Article 24 para 3 b)

The competent authority shall also make available to the public, including via the Internet …

the results of emission monitoring

The tools group recommends: The use of an online system where operators have to report and authorities assess their reports regularly. After this check and validation all results are publically available on a website. On this site emission development of every company can be checked.

Pros and cons of the use of handheld devices(tablets/laptops) for site inspections

Pros	Cons
information on board – about the installation, permits, regulations, surroundings, dangerous substances etc.	IT problems possible
in case of emergencies - release of harmful substances, eg – the use of existing warning apps – like NINA or KATWARN in Germany – a handheld device could help inspectors to protect themselves or others	forms have to suit to the tablet
synchronisation of data – saves time, avoids	battery runtime is limited (could be resolved

duplication of work, avoids mistakes by data transmissions	with a power bank)
avoids media breaches – more and more authorities use electronic files	older colleagues might have problems with it
weight saving (files could be really heavy)	may not be useable in hazardous areas (eg. ex-zones), then you still need a pen and paper
data input could be carried out via stick or voice or keyboard	may be prohibited in areas of strict secrecy
use as a camera – could serve to keep proofs	apps need backups
use as an identifier for waste - in Germany there is a website with pictures of typical waste available (maybe an app is possible to identify waste)	more expensive than paper
if you are online you could access to the current regulations	
connected to a beamer – checklists could be filled in together with the operator	
could improve the quality of work by forcing the inspector to fill in the necessary fields (which could be overlooked)	
automatic plausibility check is possible	

Conclusions:

- The inspector should have the choice between the use of handheld devices or paper-based systems.
- A handheld device should provide different ways to enter data – typing, pen, voice.
- It should provide a good compromise between size/weight and user-friendliness (a tablet with a pluggable keyboard could be a good choice, for example).
- It should be stable and protected against dust or water.

A framework for the efficient use of IT tools

- It makes sense to have a single, integrated electronic inspection tool to meet the needs of inspectors. In practice, the best way to reach this goal is to develop and install a new tool and not to attempt to improve out-dated, older ones.

- To facilitate the data exchange between operators and authorities, joint access to the relevant data should be facilitated. This data may relate to, for example, the results of emissions monitoring or also important documents such as official authorisations or waste documents.

- The European Commission has started to collect inspection data regularly from the member countries. Therefore, the inspection IT tool of authorities should be able to create exactly the data that the COM wants. At the same time the tools group is convinced that every country should have its own tool which is tailored to the specific situation and needs.

- Good IT tools are the result of a development process in which IT experts <u>and</u> inspectors work closely together. After the introduction phase, regular updates to incorporate new requirements and findings are indispensable.

- A sophisticated IT tool offers a good range of helpful features for inspectors:
  - It can help to analyse large volumes of data

- It has a clear and accurate wording

- It provides quick access to information

- It provides direct access from an installation database to a GIS application (Geographic Information System).

- The basic advantages of a good IT tool are:
  - It is motivating to staff, because it is efficient and meets the needs of inspectors

  - It reduces the demand on resources because it makes work more effective and saves time and effort

  - It improves the quality of work – especially of data, that provide the basis for decision-making.

Factsheet 3.08 –Training Programme

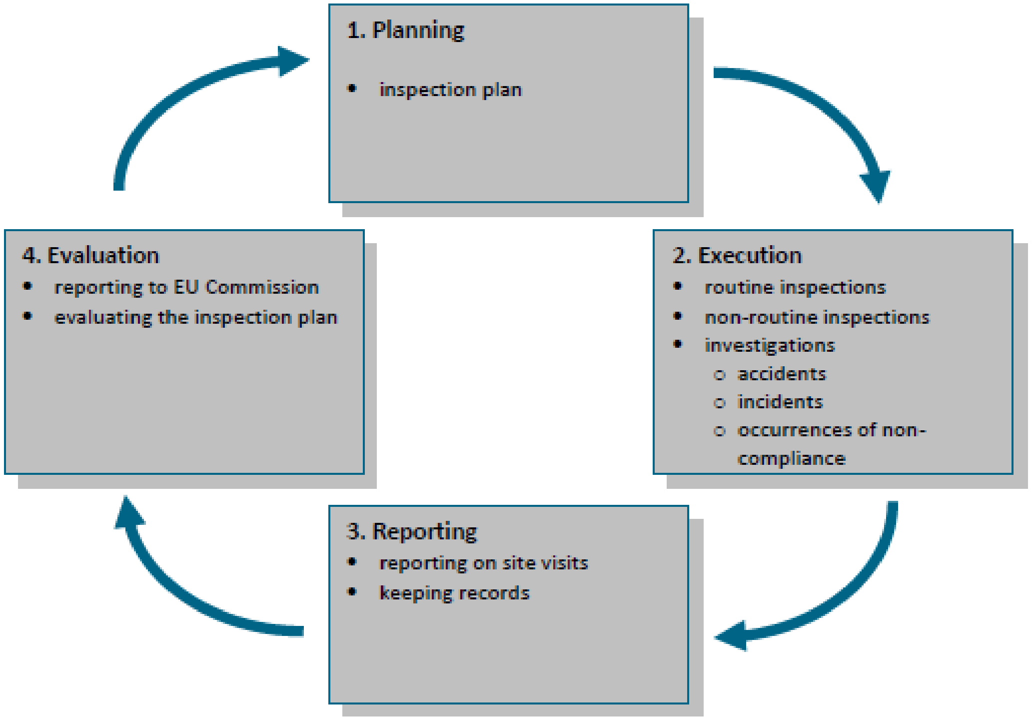
Recitals 26 of the Industrial Emission Directive states that "*Member States should ensure that sufficient staff is available with the skills and qualifications needed to carry out those inspections* effectively".

It is therefore important to have, within the Organisation, an overall training strategy or capacity-building plan for inspectors and a Training Department. Training should be continuous and relevant with the activity and needs of the inspectors. A minimum training requirement for new inspectors should be envisaged.

When preparing the framework for Inspections execution, developing a training programme for an inspector or a group of inspectors is a crucial issue.

The execution framework serves to facilitate the different inspection activities, e.g. compliance checking through site visits, enforcement actions like imposing sanctions, compliance assistance through organising information campaigns etc. Within this step, training, protocols and working instructions are developed and conditions for realisation. This step is necessary to make sure that inspection activities can be executed effectively, efficiently, professionally and consistently.

The Training Programme can be steered on the basis of the inspection planning cycle, in order to make a connection between the working practice and the EU adopted approach of IMPEL in performing inspections.



Some of the key principles of relevant EU Directives should be the starting point of the training:

- Pollution prevention, instead of pollution abatement with end-of-pipe measures;
- Overcoming of the command and control approach with the involvement of the operator, as an active and purposeful subject;
- Public availability of monitoring data and inspections results;
- Increased responsibilities placed on the operator with the self-monitoring and control of his/her impacts on the environment;
- The performing of more integrated inspections instead of just sectorial ones.

The minimum content of a Training Programme for inspectors is here presented:

1. Strategy of the organization

Main goals have to be indicated concerning environmental compliance assurance activities performed by the Organization.

2. Human and economic resources

In this chapter the people targeted to receive training and the budget available should be indicated.

3. Description of Training Needs Assessment activities performed

This assessment will show the gaps between the required and existing skills and qualifications for job. Different tools can be used:

- Questionnaire
- Discussion with managers
- Discussion with inspectors
- Discussion with operators
- Workshop

4. Training subjects

Training topics will be defined for each of the steps of the Inspection Cycle:

- Planning
- Execution
- Reporting
- Evaluation

Priorities on the different areas have to be set out. Here is an example of contents:

Planning Site inspections
Risk assessment tools
Inspection procedures
Preparation of inspection: how to build a check list (combining knowledge on technical process and requirements of legislation and permit)
Execution of inspection: how to use the check list (joint field inspections)
Assessment of operator monitoring report
Equipment needed
Protocols and working instructions for routine and non-routine inspections
Personal security
Compliance promotion during inspection
Responding to accidents and incidents
Responsibility and potential liability of inspector
Technical skills
Sessions on specific industrial sectors – Use of BREFs
Applicable legislation
Environmental management systems
Sampling methods and analysis (air, water, waste/soil, noise)

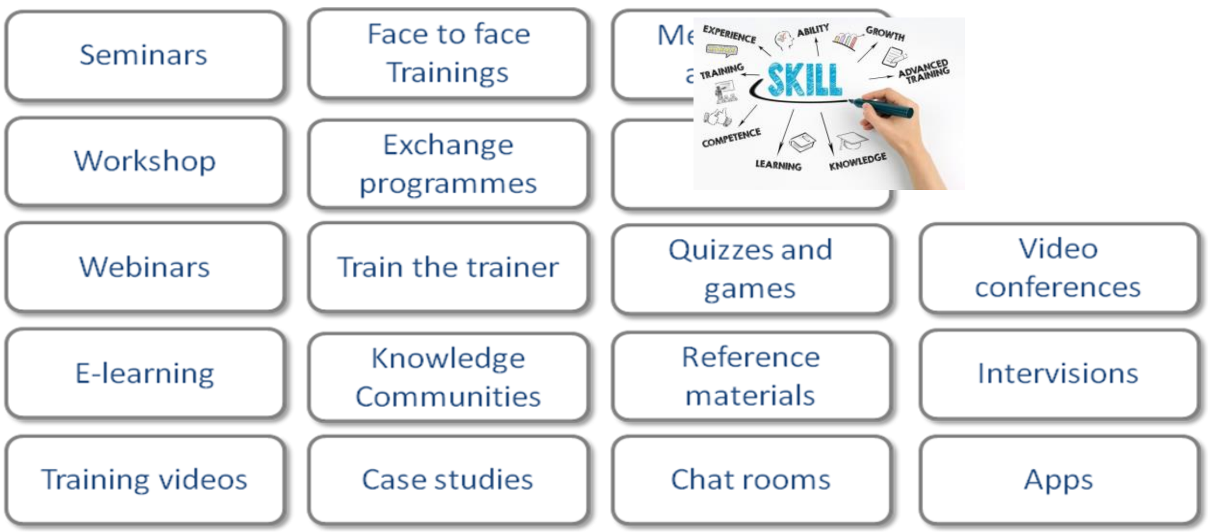
Reporting
Drafting site inspection reports
Dealing with non-compliance - Enforcement
Enforcement handbooks or guidance
Selecting the appropriate enforcement action
Procedure for imposing sanctions
The court system
Collection of evidence
Interviewing witnesses and suspects
Communication / soft skills
Communication with the public including access to information on the environment
Complaints handling
Protocols for exchange of information with other organisations
Information management within the organisation
Internal databases or information systems
Teambuilding: identify features of a highly effective team, team behaviour between team members and impact on style of leadership to stimulate knowledge sharing and initiative
Improve soft skills in communication, knowledge sharing

Evaluation
How to measure / create indicators of outcome and quality of inspections
Closing the cycle with feedback to permit writer

5. Training methods/approaches

This chapter has to indicate training methods/approaches that fit optimally to bridge the gaps detected.

List of tools that can be used to deliver training:



The inspecting authority should look into the possibility for joint or mutual training with staff from other relevant authorities.

6. Training materials

In this chapter we need to indicate the tools we need to perform a good training. For example:

- Software for videoconference
- Format of training materials
- Certificate of participation
- Reference materials

Annex XI

European Union Network for the Implementation and Enforcement of Environmental Law

IED Implementation Project

Wastewater treatment plants: how to deal with inspections

Date of report: October 2018

Introduction to IMPEL

The European Union Network for the Implementation and Enforcement of Environmental Law (IMPEL) is an international non-profit association of the environmental authorities of the EU Member States, acceding and candidate countries of the European Union and EEA countries. The association is registered in Belgium and its legal seat is in Brussels, Belgium. IMPEL was set up in 1992 as an informal Network of European regulators and authorities concerned with the implementation and enforcement of environmental law. The Network's objective is to create the necessary impetus in the European Community to make progress on ensuring a more effective application of environmental legislation. The core of the IMPEL activities concerns awareness raising, capacity building and exchange of information and experiences on implementation, enforcement and international enforcement collaboration as well as promoting and supporting the practicability and enforceability of European environmental legislation.

During the previous years, IMPEL has developed into a considerable, widely known organisation, being mentioned in a number of EU legislative and policy documents, e.g. the 7th Environment Action Programme and the Recommendation on Minimum Criteria for Environmental Inspections.

The expertise and experience of the participants within IMPEL make the network uniquely qualified to work on both technical and regulatory aspects of EU environmental legislation.

Information on the IMPEL Network is also available through its website at:www.impel.eu

Title of the report: Wastewater treatment plants: how to deal with inspections	**Number report:** 2018/Rev.1
Authors (IED Implementation Project team – Subgroup "Wastewater"): • Referent of the subgroup: Romano Ruggeri (Italy) • Roberto Borghesi (Italy) • Małgorzata Budzyńska (Poland) • Manuel Salgado (Spain) • Rikke Cochran (Denmark) • Heino Falcke (Germany)	**Total number of pages: 93** Report: 34 Annexes: 59
Executive Summary The present Report is the result of the work of the Subgroup "Wastewater", that is part of the "IED Implementation" project team. It intends to be a first approach to deal with the topic of assessing compliance of wastewater discharging by industrial installations with EU legislation; consequently, it is mainly addressed to inspection Authorities that have to tackle this task.	
Disclaimer This report is the result of a project within the IMPEL network. The content does not necessarily represent the view of the national administrations or the Commission.	

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1. Executive summary

The present Report provides an overview of the regulatory framework and monitoring requirements of urban and industrial waste water. BATs about waste water management are illustrated. Indications and practical tools for waste water inspections are presented (checklist), with a glance to sampling activities too. Results of a survey that was circulated among Member States are summarised (see Annex 2).

2. Definitions[4]

Urban waste water: Domestic waste water or the mixture of domestic waste water with industrial waste water and/or run-off rain water

Domestic waste water: waste water from residential settlements and services which originates predominantly from the human metabolism and from household activities

Industrial waste water: Any waste water which is discharged from premises used for carrying on any trade or industry, other than domestic waste water and run-off rain water

Primary treatment: treatment of urban waste water by a physical and/or chemical process involving settlement of suspended solids, or other processes in which the BOD5 of the incoming waste water is reduced by at least 20 % before discharge and the total suspended solids of the incoming waste water are reduced by at least 50 %

Secondary treatment: treatment of urban waste water by a process generally involving biological treatment with a secondary settlement or other process in which the requirements established in Table 1 of Annex I of Council Directive 91/271 are respected

Appropriate treatment: Treatment of urban waste water by any process and/or disposal system which after discharge allows the receiving waters to meet the relevant quality objectives and the relevant provisions of Council Directive 91/271 and other Community Directives

[4] From Council Directive 91/271/EEC of 21 May 1991 concerning urban waste-water treatment

3. Regulatory framework

3.1. Directive 2000/60/EC - Water framework Directive

In 2000, the European Union took a groundbreaking step when it adopted the Water Framework Directive (WFD). It introduces a new legislative approach to managing and protecting water, based not on national or political boundaries but on natural geographical and hydrological formations: river basins. It also requires coordination of different EU policies, and sets out a precise timetable for action, with 2015 as the target date for getting all European waters into good condition.

Waters must achieve good ecological and chemical status, to protect human health, water supply, natural ecosystems and biodiversity.

The definition of ecological status looks at the abundance of aquatic flora and fish fauna, the availability of nutrients, and aspects like salinity, temperature and pollution by chemical pollutants. Morphological features, such as quantity, water flow, water depths and structures of the river beds, are also taken into account. The WFD classification scheme for surface water ecological status includes five categories: high, good, moderate, poor and bad. 'High status' means no or very low human pressure. 'Good status' means a 'slight' deviation from this condition, 'moderate status' means 'moderate' deviation, and so on.

3.2. Council Directive 91/271/EEC of 21 May 1991 concerning urban waste-water treatment

The Council Directive 91/271/EEC concerning urban waste-water treatment was adopted on 21 May 1991. Its objective is to protect the environment from the adverse effects of urban waste water discharges and discharges from certain industrial sectors (see Annex III of the Directive) and concerns the collection, treatment and discharge of:

- Domestic waste water
- Mixture of waste water
- Waste water from certain industrial sectors (see Annex III of the Directive)

The areas into which urban waste water entering collecting systems shall be discharged are divided into: (a) sensitive areas; and (b) less sensitive areas.

This is illustrated in the figure below:

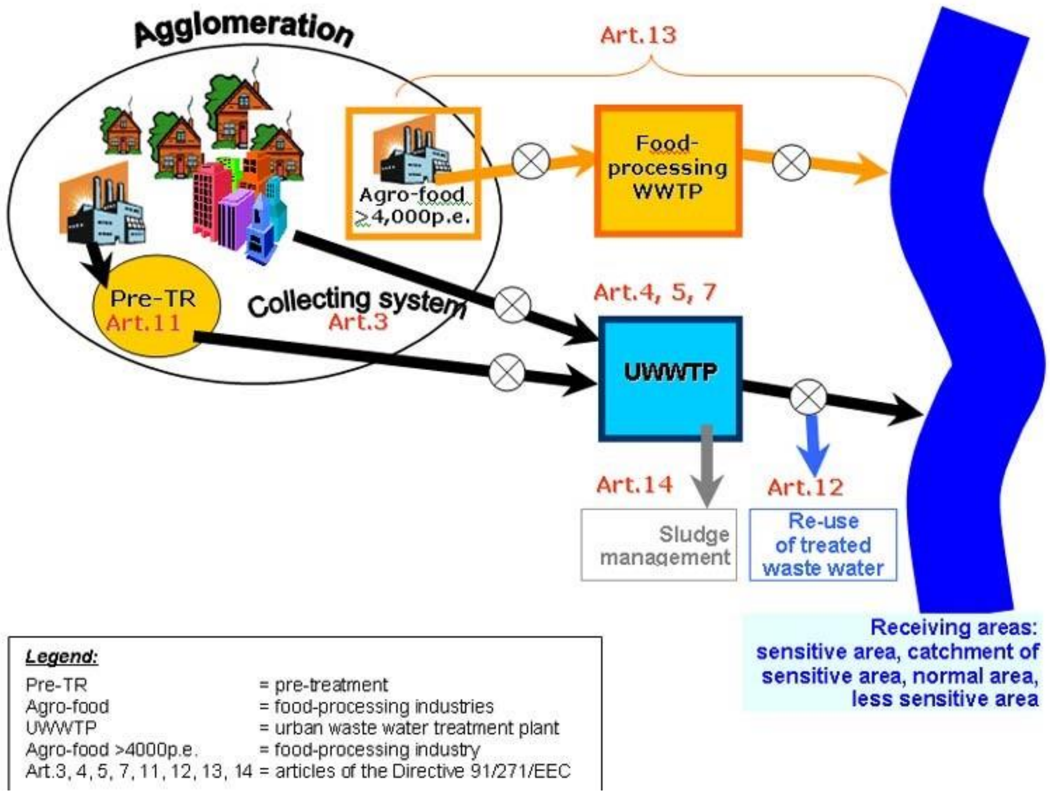

Figure 1: Discharging scheme

Four main principles are laid down in the Directive:

- Planning:
  - The Collection and treatment of waste water in all agglomerations of >2000 population equivalents

(p.e.);

- Secondary treatment of all discharges from agglomerations of > 2000 p.e., and more advanced treatment for agglomerations >10 000 population equivalents in designated sensitive areas and their catchments;

- A requirement for pre-authorisation of all discharges of urban wastewater, of discharges from the food-processing industry and of industrial discharges into urban wastewater collection systems;

- Regulation
- Monitoring by Competent authorities or appropriate bodies:
  - Monitoring of the performance of treatment plants and receiving waters;
  - Controls of sewage sludge disposal and re-use, and treated waste water re-use whenever it is appropriate.
  - Discharges from urban waste water treatment plants to verify compliance with the requirements of Annex I.B.
- Information and reporting:
  - Information collected by competent authorities or appropriate bodies in complying with paragraphs 1, 2 and 3 shall be retained in the Member State and made available to the Commission within six months of receipt of a request.

Specifically the Directive requires:

- The Collection and treatment of waste water in all agglomerations of >2000 population equivalents (p.e.);
- Secondary treatment of all discharges from agglomerations of > 2000 p.e., and more advanced treatment for agglomerations >10 000 population equivalents in designated sensitive areas and their catchments;
- A requirement for pre-authorisation of all discharges of urban wastewater, of discharges from the foodprocessing industry and of industrial discharges into urban wastewater collection systems;
- Monitoring of the performance of treatment plants and receiving waters;
- Controls of sewage sludge disposal and re-use, and treated waste water re-use whenever it is appropriate.

The Directive states that the discharge of industrial waste water into collecting systems and urban waste water treatment plants is subject to prior regulations and/or specific authorizations by the competent authority or appropriate body. Industrial waste water entering collecting systems and urban waste water treatment plants shall be subject to such pre-treatment as is required in order to :

- protect the health of staff working in collecting systems and treatment plants,
- ensure that collecting systems, waste water treatment plants and associated equipment are not damaged,
- ensure that the operation of the waste water treatment plant and the treatment of sludge are not impeded,
- ensure that discharges from the treatment plants do not adversely affect the environment, or ensure that receiving waters comply with other Community Directives,
- ensure that sludge can be disposed of safety in an environmentally acceptable manner.

3.3. Directive 2010/75/EU - Industrial Emissions Directive (IED)

To control industrial emissions, the EU has developed a general framework based on integrated permitting. This means the permits must take account of a plant's complete environmental performance to avoid pollution being shifted from one medium - such as air, water and land - to another. Priority should be given to preventing pollution by intervening at source and ensuring prudent use and management of natural resources. Directive 2010/75/EU of the European Parliament and the Council on industrial emissions (the Industrial Emissions Directive or IED) is the main EU instrument regulating pollutant emissions from industrial installations.

Best available techniques (BAT) conclusions are the reference for setting permit conditions for installations covered by Chapter II of Directive 2010/75/EU. The competent authorities should set emission limit values which ensure that, under normal operating conditions, emissions do not exceed the emission levels associated with the best available techniques as laid down in the BAT conclusions.

The most specifically focused in waste water treatment are the **Conclusions for common waste water and waste gas treatment/management systems in the chemical sector** (WWT BAT - Commission Implementing Decision (EU) 2016/902 of 30 May 2016). Although other BAT conclusions and reference documents deal with waste water treatment.

Independently operated treatment of waste water not covered by Directive 91/271/EEC and discharged by an installation covered by Chapter II of the Directive is an activity subjected to the IED permit.

With regard to indirect releases of polluting substances into water, the effect of a water treatment plant may be taken into account when determining the emission limit values of the installation concerned, provided that an equivalent level of protection of the environment as a whole is guaranteed and provided this does not lead to higher levels of pollution in the environment.

3.4. Regulation (EC) No 166/2006: the European Pollutant Release and Transfer Register (E-PRTR)

Regulation (EC) No 166/2006 of the European Parliament and of the Council of 18 January 2006 established the European Pollutant Release and Transfer Register (E-PRTR), in the form of a publicly accessible electronic database. This database meets the requirements of the United Nations Economic Commission for Europe (UNECE) Protocol on Pollutant Release and Transfer Registers, signed by the EU in May 2003.

This register is available to the public free of charge on the internet. The information it contains can be searched using various criteria (type of pollutant, geographical location, affected environment, source facility, etc.).

The register contains information on releases of pollutants to air, water and land, as well as off-site transfers of pollutants present in waste-water and waste. The register covers 91 pollutants listed in Annex II, including greenhouse gases, other gases, heavy metals, pesticides, chlorinated organic substances and other inorganic substances; release data to water for each pollutant exceeding threshold value (according to Annex II of the Regulation) have to be produced by the operator.

Releases are reported when the level of emissions exceeds a certain threshold and originates from one of the 65 activities listed in Annex I. The majority of these activities are also regulated under the Directive on industrial emissions and comprises, in particular, the establishments covered by the following sectors: energy production, mineral industry, chemical industry, waste and wastewater management, and paper and wood production and processing.

Where available, the register also provides some information on pollution from diffuse sources.

The regulation is a key instrument in delivering the requirements of the Aarhus convention as it provides the public with the opportunity to be involved in further developing the register and preparing amendments.

3.5. Recommendation 2001/331/EC minimum criteria for environmental inspections in the Member States (RMCEI)

The RMCEI contains non-binding criteria for the planning, carrying out, following up and reporting on environmental inspections. Its objective is to strengthen compliance with EU environment law and to contribute to its more consistent implementation and enforcement in all Member States. The RMCEI covers all industrial installations, companies and facilities that need authorisation, permit or licensing requirements under EU law. Such installations are also called “controlled installations” in the RMCEI.

This Recommendation suggests that all environmental inspection tasks should be carried out according to a minimum criteria applied in the organising, carrying out, following up and publishing the results of such tasks, in order to strengthen the compliance with environmental law.

Besides providing general obligations for MS, such as aiming for high environmental protection and crossborder cooperation, the RMCEI deals with four main areas: • Establishing plans for environmental inspections of installations

- Performing inspection
- Reporting on inspection
- Investigating serious accidents, incidents and occurrences of non-compliance.

4. Linked IMPEL projects

4.1. Integrated water approach (2017)

The implementation of EU legislation on water and land has been identified as one of the top challenges in recent IMPEL research.

The objective of this project is to identify, both from the regulatory and technological point of view, how the water resource is managed today in the industry sector subjected to the Integrated Environmental Permitting (IEP) regulation.

The main aim of this project is to compare and share, among the IMPEL members, the implementation of EU legislation relating to water resources management and protection in industrial installations and activities. New approaches for reducing fresh water consumption and over-abstraction of water are to be identified, enhancing water reuse through process analysis, water balance and utilities optimization.

This project is also focused on the implementation of innovative technologies for industrial water treatment able to provide energy saving, sludge production minimization and re-use of treated waste waters, allowing to respect the required discharge limits.

The Final Report of the project (2017) can be found at the following web address: https://www.impel.eu/wp-content/uploads/2018/06/FR-2017-10-Integrated-Water-Approach-Guidance.pdf

4.2. Linking the Water Framework and IPPC/IE Directives (2010-2013)

The IED Directive 2010/75/EU and Water Framework Directive 2000/60/EC are two of the most wide-reaching items of EU environmental law. They have presented many challenges to the Member States.

Installations regulated under IPPC may impact on the water environment, such as through direct or indirect discharges of pollutants, water abstraction, etc. IPPC requires installations to operate in conditions of compliance with Best Available Techniques (BAT). They are also required to respect environmental quality standards established in EU law, including those derived under EU water law. However, the relationship between the two sets of obligations is often far from simple.

Therefore a phased IMPEL project was started in 2010 to investigate the relationship between both directives. The analysis focused on pressures from point source pollution due to organic (e.g. untreated/partially treated waste water from agglomeration and industry), nutrient and chemical substance emissions.

5. Monitoring and sampling of wastewater: JRC Reference Report on Monitoring of Emissions to Air and Water from IED installations (2018)

5.1. Monitoring regimes

The chapter "Monitoring of emissions to water " of the BREF "Reference Report on Monitoring of Emissions to Air and Water from IED installations" includes information on:

- water pollutants
- continuous/periodic measurements
- surrogate parameters
- toxicity tests and whole effluent assessment
- costs.

This BREF gives some guidance on measurement and sampling, distinguishing between continuous and periodic measurements, between continuous and periodic sampling, and between composite and spot samples.

In the case of **continuous (on-line) measurements**, no discrete samples are taken. Two types of continuous monitoring techniques can be considered:

1. Fixed in-situ (or in-line) continuous reading instruments. Here the measuring cell is placed in the duct, pipe or stream itself. These instruments do not need to withdraw any sample to analyse it and are usually based on optical properties. Regular maintenance and calibration of these instruments is essential.

2. Fixed on-line (or extractive) continuous reading instruments. This type of instrumentation continuously extracts samples of the emission along a sampling line, transport them to an on-line measurement station, where the samples are analysed continuously. This type of equipment often requires certain pre-treatment of the sample.

In the case of **periodic measurements**, sampling may be carried out continuously or periodically:

- For continuous sampling, the samples are taken continuously with a fixed or variable flow rate. If the sampling flow rate is adjusted continuously to the waste water flow (flow-proportional), the samples are representative of the bulk water quality. This requires either continuous on-line measurement of the flow rate or a sufficient number of discrete samples for the relevant time period to allow the determination of changes in the waste water composition. This method is most suitable for taking representative samples of waste water discharges when the flow rate and concentration of the parameter of interest vary significantly. However, this method can involve higher costs, in particular, depending on the number of samples to be analysed; therefore, it is only applied in extraordinary cases.

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For periodic sampling, the samples are taken at different intervals, typically depending on time or waste water volume flow rate. One example is flow-proportional sampling, in which a predefined amount of sample is taken for each predefined volume of waste water discharged.

Continuous (on-line) measurement		
Sampling type		**Sample type**
Continuous	Direct measurement in the effluent flow without extraction	No discrete samples
	Time-proportional extraction	
	Flow-proportional extraction	
Periodic measurement (analysis of each separate sample)		
Sampling type		**Sample type**
Continuous	Time-proportional extraction	Discrete samples for short time intervals or composite samples for longer time intervals (e.g. 24 hours)
	Flow-proportional extraction	
Periodic	Time-proportional extraction	
	Flow-proportional extraction	
	Instantaneous extraction	Spot samples

The following main sample types for periodic measurements can be distinguished:

- Composite samples are, by far, the most commonly used samples. They are obtained by mixing appropriate proportions of periodically (or continuously) taken samples. Composite samples provide average compositional data. Consequently, before combining samples, it should be verified that such data are desired and that the parameter(s) of interest do(es) not vary significantly during the sampling period. It is assumed that this is generally the case for industrial waste water.
- Spot samples are discrete samples taken at random time intervals. They are generally not related to the waste water volume discharged, but typically used when treating batches of waste water. The application depends on the parameter, its variations, and the waste water matrix in the industrial sector.

Several water parameters can be measured continuously as well as periodically. A number of parameters, such as pH, temperature and turbidity, are typically measured continuously, because the results are used for process control and are important to run the waste water treatment plant properly.

Examples of water parameters that can be continuously measured include the following:

- Water flow;

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- pH, dissolved oxygen, and conductivity by direct electrochemical measurements;
- nitrate and ammonia by specific ion electrodes;
- metals by anodic stripping voltammetry;
- ammonia, phosphate, total phosphorus (TP), and iron by spectrophotometry;
- TOC by combustion and IR spectrometry.

Periodic measurements are defined as the determination of a measurand at specified time intervals. In general, these measurements are based on periodic sampling at fixed intervals, which can be time-, volume- or flowdependent, followed by an analysis of the parameters under investigation in the laboratory (on-site, off-site).

A measurement plan has to be defined, to ensure that emission measurements are adequate for the given measurement objective.

The location of the sampling point(s) should ensure that the sample is representative of the effluent discharge. It is recommended to accurately describe and mark the sampling point on the process flowsheet, if possible supplemented with photographs to facilitate identification of the exact location. Also the sampling point should be constructed to fit sampling equipment and with room for personnel to service the equipment.

Monitoring in BAT conclusions is usually based on flow-proportional composite samples. However, time proportional composite samples may lead to equally representative results provided that the variations in the concentrations or flows are small.

Taking composite samples over a period of 24 hours is usually automatic; instruments automatically withdraw a portion of sample at the appropriate volume discharged or time. It is advisable that the total sample volume is as large as is reasonably practicable to accommodate. In addition, it is necessary to consider the stability of the target parameter over the total sample collection time, as samples may deteriorate or adhere to the walls of the sampling container while being kept in the automated sampling device. In order to preserve the composite sample, it is often cooled and chemicals might be added.

5.2. Sampling equipment

The choice of sample container is of major importance to preserve the integrity of the samples (e.g. to prevent sample contamination or losses due to adsorption or volatilisation). For the sampling of waste water, plastic containers are generally recommended for most parameters. Glass containers are generally used for the measurement of oil, grease, hydrocarbons, detergents, and pesticides [152, ISO 1992]. EN ISO 5667-3:2012 includes detailed provisions on the types of containers to be used, depending on the

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parameter. This standard is complementary to other, more specific measurement standards which provide more detailed information on the required type of container and its pretreatment.

Typical simple devices used for manual sampling include buckets, ladles, or wide-mouthed bottles that may be mounted on a handle of a suitable length. Another possibility is to use Ruttner or Kemmerer samplers which consist of a tube with a hinged lid at each of its ends.

Automated sampling to obtain flow- or time-proportional samples can be carried out with several different devices which may be using a chain pump (paternoster pump), a peristaltic pump or compressed air and/or vacuum.

EN ISO 5667-3:2012 provides general information on the preservation and handling of water samples, including maximum storage times. To preserve pollutant concentrations that may change during sample storage, the following measures may be necessary, depending on the waste water composition and the pollutant concerned:

- storage of the sample in the dark;
- cooling of the sample;
- filtration of the sample;

stabilisation of the sample with acids, alkalis, or other chemicals;

- re-dissolution of precipitates.

6. Waste water management: Best Available techniques in different industrial sectors

Waste water management, collection and treatment, as well as water saving measures, are part of the BAT Conclusions issued for different industrial sectors.

The following BAT Conclusions covering waste water treatment have been issued so far:

- Decision (EU) 2012/134/EU (GLS: Manufacture of Glass)
- Decision (EU) 2012/135/EU (IS: Iron and Steel Production)
- Decision (EU) 2013/732/EU (CAK: Production of Chlor-alkali)
- Decision (EU) 2013/84/EU (TAN: Tanning of Hides and Skins)
- Decision (EU) 2014/687/EU (PP: Pulp and paper)
- Decision (EU) 2014/738/EU (REF: Refining of Mineral Oil and Gas)
- Decision (EU) 2015/2119 (WBP: Wood-based Panels Production)
- Decision (EU) 2016/902 (CWW: Common Waste Water and Waste Gas Treatment/ Management Systems in the Chemical Sector)
- Decision (EU) 2016/1032 (NFM: Non-ferrous Metals Industries)

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- Decision (EU) 2017/302 (IRPP: Intensive Rearing of Poultry&Pigs)
- Decision (EU) 2017/1442 (LCP: Large Combustion Plant)
- Decision (EU) 2017/2117 (Large Volume Organic Chemicals)
- Decision (EU) 2018/1147 (Waste Treatment).

The BREF "Common Waste Water and Waste Gas Treatment/ Management Systems in the Chemical Sector" is particularly focused in the treatment of wastewater; a short description of this BREF and a list of the main requests of the above listed BAT Conclusions for a proper management of waste water is given below.

The BREF "Monitoring of emissions to air and water from IED installations" summarises information on the monitoring of emissions to air and water from IED installations, thereby providing practical guidance for the application of the Best Available Techniques (BAT) conclusions on monitoring in order to help competent authorities to define monitoring requirements in the permits of IED installations.

6.1. BREF Common Waste Water and Waste Gas Treatment/ Management Systems in the Chemical Sector

This BREF for Common Waste Water and Waste Gas Treatment/Management Systems in the Chemical Sector concerns the activities specified in Sections 4 and 6.11 of Annex I to Directive 2010/75/EU, namely: • Section 4: Chemical industry;

- Section 6.11: Independently operated treatment of waste water not covered by Council Directive 91/271/EEC and discharged by an installation undertaking activities covered under Section 4 of Annex I to Directive 2010/75/EU.

This document also covers the combined treatment of waste water from different origins if the main pollutant load originates from the activities covered under Section 4 of Annex I to Directive 2010/75/EU.

Chapter 2 of the BREF provides data and information concerning the environmental performance of waste water treatment plants (WWTPs) at chemical sites.

Chapter 3 describes in more detail the techniques to prevent or, where this is not practicable, to reduce the environmental impact of operating installations in this sector that were considered in determining the BAT. This information includes, where relevant, the environmental performance levels (e.g. emission and consumption levels) which can be achieved by using the techniques, the associated monitoring and the costs and the cross-media issues associated with the techniques.

Chapter 4 presents the BAT conclusions as defined in Article 3(12) of the Directive.

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Commission Implementing Decision (EU) 2016/902 of 30 May 2016 established best available techniques (BAT) conclusions for common waste water and waste gas treatment/management systems in the chemical sector. In particular, these BAT conclusions cover the following issues referred to water treatment:

- environmental management systems;
- water saving;
- waste water management, collection and treatment;
- waste management;
- treatment of waste water sludge.

The techniques listed and described in these BAT conclusions, although generally applicable, are neither prescriptive nor exhaustive. Other techniques may be used that ensure at least an equivalent level of environmental protection.

6.2. BAT in wastewater management: an insight in the BREFs

Some common key BATs can be found in the issued BAT Conclusions; these are here listed as they are generally present in the waste water management of all the industrial sectors:

Environmental management systems

In order to improve the overall environmental performance, BAT is to implement and adhere to an environmental management system (EMS). Establish and maintain an inventory of waste water streams, as part of the environmental management system, that incorporates information about the characteristics of the waste water.

Sampling and Monitoring

- Monitoring of key process parameters (including continuous monitoring of waste water flow, pH and temperature) at key locations (e.g. influent to pretreatment and influent to final treatment).
- BAT is to use ISO 5667 for water sampling and to monitor the emissions to water at the point where the emission leaves the installation.
- Monitoring emissions to water in accordance with EN standards with at least a fixed minimum frequency (varying for the different industrial sectors).

Monitoring the outlet of a defined pre-treatment (e.g. in the LVOC BATc);

- Monitoring the outlet of the final treatment of combined effluents (e.g. in the CWW BATc).

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Emission levels

- Emission levels associated with the best available techniques (BAT-AELs) for emissions to water usually refer to values of concentrations (mass of emitted substances per volume of water), expressed in µg/l or mg/l. Unless otherwise stated, the BAT-AELs refer to flow-weighted yearly averages of 24-hour flow-proportional composite samples, taken with the minimum frequency set for the relevant parameter and under normal operating conditions. Time-proportional sampling can be used provided that sufficient flow stability is demonstrated.
- In some cases, yearly average is an average of all daily averages taken within a year, weighted according to the daily production, and expressed as mass of emitted substances per unit of mass of products/materials generated or processed (pulp and paper industry).
- The BAT-associated emission levels (BAT-AELs), set in the CWW BATc, apply to direct emissions to a receiving water body from:
  - (i) the activities specified in Section 4 of Annex I to Directive 2010/75/EU;
  - (ii) independently operated waste water treatment plants specified in Section 6.11 of Annex I to Directive 2010/75/EU provided that the main pollutant load originates from activities specified in Section 4 of Annex I to Directive 2010/75/EU;
  - (iii) the combined treatment of waste water from different origins provided that the main pollutant load originates from activities specified in Section 4 of Annex I to Directive 2010/75/EU.

Reducing emissions to water

- Reduce the volume and/or pollutant load of waste water streams, to enhance the reuse of waste water within the production process.
- Maximise internal recycling.
- Remove insoluble and soluble polluting substances:
  - Removal of insoluble substances by recovering oil (API Separators (APIs), Corrugated Plate Interceptors ecc); removal of insoluble substances by recovering suspended solids and dispersed oil (Sand Filtration, dissolved Gas Flotation (DGF) ecc)
  - Removal of soluble substances including biological treatment and clarification: Biological treatment techniques may include Fixed bed systems or Suspended bed systems.
- In order to prevent the contamination of uncontaminated water and to reduce emissions to water, BAT is to segregate uncontaminated waste water streams from waste water streams that require treatment (Water and drainage system for segregation of contaminated and uncontaminated water streams).
- Avoid sending non-contaminated water to general waste water treatment.

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Reducing the volume of waste water sludge

In order to reduce the volume of waste water sludge requiring further treatment or disposal, and to reduce its potential environmental impact, BAT is to use one or a combination of the techniques given below.

- Conditioning. Chemical conditioning (i.e. adding coagulants and/or flocculants) or thermal conditioning
- Thickening/dewatering. Thickening can be carried out by sedimentation, centrifugation, flotation, gravity belts, or rotary drums. Dewatering can be carried out by belt filter presses or plate filter presses.
- Stabilisation. Sludge stabilisation includes chemical treatment, thermal treatment, aerobic digestion, or anaerobic digestion.
- Drying. Sludge is dried by direct or indirect contact with a heat source.

Treatment

- BAT is to use an integrated waste water management and treatment strategy that includes an appropriate combination of the techniques
    - Process-integrated techniques: Techniques to prevent or reduce the generation of water pollutants.
    - Recovery of pollutants at source: Techniques to recover pollutants prior to their discharge to the waste water collection system.
    - Waste water pretreatment: Techniques to abate pollutants before the final waste water treatment. Pretreatment can be carried out at the source or in combined streams.
    - Final waste water treatment by, for example, preliminary and primary treatment, biological treatment, nitrogen removal, phosphorus removal and/or final solids removal techniques before discharge to a receiving water body.
- BAT is to pretreat waste water that contains pollutants that cannot be dealt with adequately during final waste water treatment by using appropriate techniques. In general, pretreatment is carried out as close as possible to the source in order to avoid dilution, in particular for metals. Sometimes, waste water streams with appropriate characteristics can be segregated and collected in order to undergo a dedicated combined pretreatment. Use an adequate pretreatment for each final flow.
- When further removal of organic substances, nitrogen or phosphorus is needed, BAT is to use tertiary treatment (pulp and paper industry).

Prevent or reduce odour emissions

In order to prevent or to reduce odour emissions from waste water collection and treatment and from sludge treatment, BAT is to use one or a combination of the techniques given below.

(a) Minimise residence time of waste water and sludge in collection and storage systems, in particular under anaerobic conditions.

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(b) Chemical treatment. Use chemicals to destroy or to reduce the formation of odorous compounds (e.g. oxidation or precipitation of hydrogen sulphide).

(c) Optimise aerobic treatment. This can include: (i) controlling the oxygen content; (ii) frequent maintenance of the aeration system; (iii) use of pure oxygen; (iv) removal of scum in tanks.

(d) Enclosure. Cover or enclose facilities for collecting and treating waste water and sludge to collect the odorous waste gas for further treatment.

(e) End-of-pipe treatment. This can include: (i) biological treatment; (ii) thermal oxidation. Biological treatment is only applicable to compounds that are easily soluble in water and readily bioeliminable.

6.3. Waste water technologies used in industrial process: general analysis

The main unit processes used at the final WWTPs are:

- physical-chemical and biological treatment or only biological treatment:
  - Complete mix activated sludge (CMAS) flat tank
  - CMAS tower biology
  - membrane bioreactor
  - activated sludge without further specification;
  - fixed-bed reactor
  - expanded-bed process
  - biological treatment without further specification
- physical-chemical treatment only:
  - neutralisation
  - precipitation/coagulation/flocculation
  - crystallisation
  - skimming
  - oil-water separation
  - oxidation with H2O2
  - stripping
  - activated carbon filtration.

With respect to the *final solids (TSS)* removal step, the following techniques are applied at the WWTPs: • sedimentation

- ultrafiltration, including membrane bioreactor
- sand filtration
- filtration without further specification
- flotation
- reverse osmosis

Depending on the *organic load* of the influent, a variety of pre-treatment processes are used, including:

- additional activated sludge processes
- trickling filters
- fixed-bed reactors
- anaerobic pre-treatment

- oxidation
- oil-water separation
- stripping.

Several of the WWTPs apply *nitrogen and/or phosphorous* removal:

- biological nitrification/denitrification
- chemical phosphorous precipitation.

Unit for waste water *sludge* reduction: Conditioning, Thickening/dewatering, Stabilisation, Drying.

7. Industrial wastewater re-use

Reusing water in industry has the potential to reduce the costs of water supply and wastewater treatment by industries and reduces pressure on water resources. Industry may reuse its own treated wastewater or that from another industry. It may also reuse treated wastewater from an urban WWTP. Water reuse is in the direction of compliance to the water efficiency objectives of the Industrial Emissions Directive. It is also important to note that water reuse by industry may be part of wider recycling of resources between industrial and other users in systems known as 'industrial symbiosis' to provide significant savings to water abstracted from natural water bodies.

Industrial water from treated wastewater replaces the use of abstraction of ground or surface water by the industry itself and may also reduce the discharge of treated wastewater into the environment, thereby limiting the introduction of those pollutants which are not removed from the wastewater by primary and secondary treatment. Uses of appropriately treated wastewater in industry include cleaning, cooling and boiler feed.

The degree of water reuse in industry differs significantly across industrial sectors and is strongly dependent on both the nature of the industrial process and local circumstances as well as the proximity of the industry to the water supply.

The figure shows the development of industrial reuse of treated wastewater:

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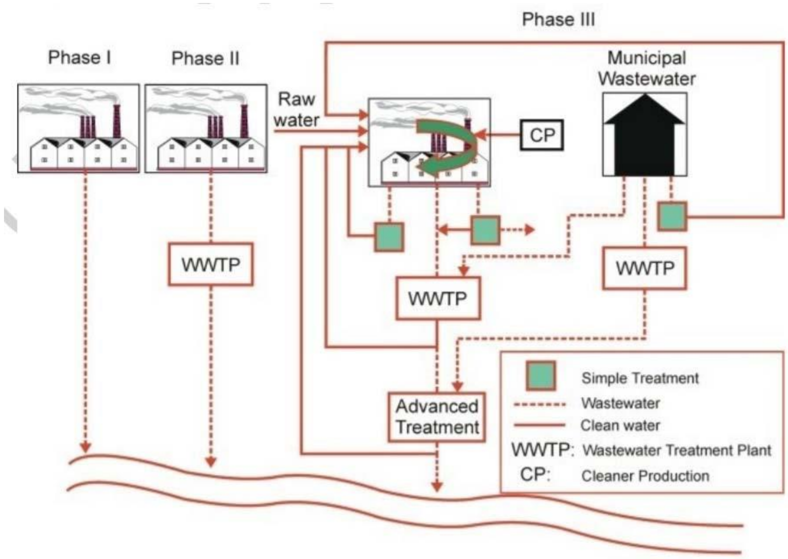

Figure 2: Development of industrial wastewater treatment and reuse

It is important to note that industrial water reuse is highly determined by the exact quality needs of the individual industrial process and/or product as well as the costs of producing water of the required quality compared to other suitable sources.

Major users of water and producers of wastewater include the chemical sector, paper and pulp production sector, beverage sector, textile sector and aggregates sector. Users may also benefit if water reuse provides water of a guaranteed quality.

It is firstly important to note that Art. 12.1 of the Directive 91/271/EEC states that "Treated waste water shall be reused whenever appropriate. Disposal routes shall minimise the adverse effects on the environment". Therefore, the UWWTD makes two direct statements regarding reused treated wastewater:

- Wastewater shall be reused whenever appropriate.
- Member States shall minimise any adverse effects on the environment from reuse of wastewater.

Industrial wastewater is addressed under Art. 11 and Art. 13 of the Directive 91/271/EEC. Art. 11 requires that industrial wastewater discharged into collecting systems that lead to a UWWTP is subject to prior authorisation and that the conditions impose satisfy the requirements of Annex IC. If it is decided that water from the WWTP should be reused, conditions may need to be imposed on the quality of the industrial discharges to ensure that this is possible.

Art. 13 concerns certain industrial activities (mainly food and beverage industries) listed in Annex III of that Directive which have their own wastewater treatment systems and which do not discharge to UWWTPs. Art. 13 requires that such discharges are also subject to prior authorisation before discharge. If such water were

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to be considered for reuse, then the prior authorisation would likely require amendment to ensure that the level of treatment meets the quality objectives for the particular use of the reuse water.

8. Self monitoring report: minimum content

Self-monitoring is performed:

- in order to control and optimize the operation of waste water treatment plants;
- to verify compliance with ELVs set up in the permit or general binding rules;
- to comply with the obligations for self-monitoring set up in the permit or general binding rules (e.g. referring to the monitoring as described in the BAT conclusions);
- for reporting purposes, e.g. PRTR;
- for other reasons, e.g. environmental liability, waste water fees, water reuse, environmental audits ecc.

The scope for the self-monitoring report in terms of parameters and assessment usually needs to be defined in the permit or by some agreement of the competent authority and the operator.

It may contain the following pieces of information:

- Timing of the sample: date, hour, ecc.
- Identification of each point of measurement: coordinates, process from which the wastewater originates, waste water flow

  Statistical analysis for each parameter, e.g. number of measurements, number of measurements below detection limit, median or average, 90-Percentile, maximum

- Date and results of the individual measurements (concentration and/or loads)
- Comparison of self-monitoring results with ELVs
- Information on applied (standard) methods for sampling and analysis, and deviation from the methods (e.g. due to conditions of the sample)
- Identification of the person taking the sample (accredited or not)
- Maintenance and calibration information for online analysers
- Information needed for the interpretation of data (e.g. regarding maxima and trends), e.g. changes in production or in wastewater treatment, other than normal operating conditions (OTNOC) events, extreme weather conditions.

Ideally, the report does not contain confidential information. If confidential information needs to be included, an additional excerpt including only the non-confidential information could be provided to respond to third party information requests.

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With respect to the minimum content, the following potential elements may be highlighted:

- For discharges from IED installations, the annual report should comprise the waste water flow and all parameters that are subject to ELVs (e.g. BAT-AEL).
- The annual report should include all relevant discharges of pollutants to surface waters or external waste water treatment plants, that are subject to the Environmental Quality Directive (EU-D 2008/105/EG, amended by EU-D 2013/39/EU).
- The annual report may include all PRTR parameters which are or potentially could be discharged beyond the PRTR thresholds.
- Annual reports for indirect discharges from IED installations to municipal treatment plants shall also consider parameters which are relevant for the waste water collection and treatment system.

The entity of measurements per parameter that is considered in the annual report may refer to the minimum monitoring frequency as prescribed in the permit or to the number of measurements that have been actually performed by the operator which in some cases may be substantially higher.

9. Inspections in wastewater treatment plants: indications

The aim of the inspection is to check compliance of the operator with the operating/environmental conditions set in the issued permit.

9.1. Before the inspection: desktop study

The inspection team should be fully prepared for the inspection. It should therefore gather all the relevant information and data that is available.

The collection and evaluation of existing information about the installation is critical for the success of the inspection. Examples of information to be collected are listed below:

- Reports of previous inspections of the site
- Application for the permit
- Environmental permit/s and Self monitoring plan: provisions for water treatment and discharge
- Monitoring data at the discharging point and build the trend (e.g. final effluent to surface water or to urban wastewater collection system); data should be included in the Environmental self monitoring reports;
- List of analytical methods used in the installation
- Layout of the water treatment plant: waste water streams and sections of the plant (partial discharging point to avoid mixing)
- BREF for Common Waste Water and Waste Gas Treatment/ Management Systems in the Chemical Sector and sectorial BREF
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- List of EMS technical procedures related to management of the treatment.

The issues that should be taken into account while examining self-monitoring results (Self monitoring register last lab analysis) are as follows:

- Checking if the self-monitoring is done in line with the permit, i.e. checking the frequency, parameters measured, equipment used.
- Checking if the reference methods for taking samples and making measurements and analysis were used.
- Checking whether a certified (accredited) laboratory did collection of samples and analysis.
- Check data about efficiency of the treatment (trend).
- Checking if emission limit values are breached.

On the basis of the evaluation of the collected information the following has to be prepared:

- Relevant questions which will be used for the operator's interview
- A check list to facilitate the inspection
- An outline of the "critical" ELV (i.e. those parameters which significantly contribute to the pollution load coming out of the installation)

  The list of BATs (according to the issued permit) which the operator should have installed and operated

- The list of documentation to be provided by the operator (e.g. self-monitoring records, annual reports submitted to the authorities)
- Agenda of the inspection (see next subsection)
- Analytical devices for an on-site sampling of the discharged water.

The preliminary analysis of the collected documentation must enable a better understanding of the cycle of the water treatment plant and its past and current critical points. Advantages of using a checklist (see Annex to have an example) are:

- to ensure all necessary aspects will be inspected;
- a better organisation of the interview and site visit;
- time rationalisation;
- fast assessment of the non-compliance situations.

9.2. During the inspection

The aim of the inspection will be to check compliance of the operator with the operating/environmental conditions set in the issued permit.

The checklist and the operating/environmental conditions set in the issued permit will be the „guidance" throughout the inspection. If necessary, take samples, and/or define the samples that should be taken by a certified (accredited) laboratory or try to be on site when the samples are taken randomly so the inspector knows it is done right.

During the documentation checking, the following items should for example be verified:

- Self monitoring register (last lab analysis);
- Assess change in treatment efficiency by comparing the most recent data with the trend (check permit conditions if present)
- Maintenance operations register;
- Communications to Competent Authority (threshold breaches etc);
- Liquid Waste input/output register;
- EMS Procedures.

During the inspection visit, the sections of the waste water treatment plant have to be investigated, with the following main purposes:

- Check correspondence of the points of discharge with those indicated in the permit
- Check the waste water streams in order to assess that compliance with the limits is not achieved by dilution
- Check procedures, competences (training…) and tools used by the operator or third company to take samples
- Check if all the sections of the plant are working
- Check how the sludge (produced by the treatment) is treated and which is the final destination (use in agriculture, incineration, landfill etc)
- Check which parameters are continuously monitored (flow, pH etc); check maintenance of devices and calibration
- Check how rain water is managed (first flush collection and treatment)
- System to collect not treated water in case of heavy rain
- Check if any kind of pretreatment is needed for the pollutants that will not be affected by the final treatment
- Check if treated water is re-used or discharged.

It is also crucial to investigate how the company deals with **severe weather conditions**, checking EMS procedures and equipment in place; for example, the installation should know how to tackle severe rainwater conditions, to prevent an overflow of the water treatment basins and therefore limiting the opening of emergency discharging systems to the environment (sea, river) of untreated wastewater streams.

9.3. Sampling

Sampling is the action to extract a (waste) water mass with a view to investigating a number of clearly defined properties. A representative sample is a sample whose composition corresponds to that of the wastewater to be investigated or a specific part thereof.

9.3.1 Auditing

When the inspection group is auditing the sampling and analysis activities of the operator (or of a third part), the aim of the site inspection should be to check:

- the compliance of the operator with the reference methods adopted for taking samples and making measurements and analysis, related to conditions set in the monitoring plan (and permit);
- the qualified competences of the operators (training, personnel certification registrations etc.);
- the accredited laboratory collected samples and analysis, and relative signature of the responsible.

ISO 5667 establishes general requirements for sampling, preservation, handling, transport and storage of all water samples including those for biological analyses.

9.3.2 Performing sampling

Monitoring may also be performed by authorities or on behalf of authorities by third-party laboratories

as: • periodic monitoring;

- monitoring to react on incidents and complains;
- projects to assess the quality and impacts of the waste water beyond the permit requirements; sampling during an inspection.

Some Inspection Authorities can perform sampling by their own. Periodic monitoring usually will be more frequent than inspections (e.g. 3-12 times per year) and less frequent than self-monitoring. In order to ascertain whether the limits of acceptability, as set by current legislation, are complied with, the sampling of the waste water must be carried out at the sampling point, at the outlet of the final treatment or the point of discharge to the receiving water body or the urban wastewater system. The sampling well must be easily accessible and of adequate size.

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The sampling may be instantaneous (withdrawing a suitable volume of effluent in one solution), medium composite (obtained by mixing a number of samples, taken in a given period of time; from it you get the required volume for analysis), continuous (continuous withdrawal of a portion of the effluent for a certain time period to obtain the volume required for the analysis).

Devices and tools should preferably be made of inert material. The preference is for stainless steel because teflon (PTFE) is very expensive and the other materials have limitations:

- corrosion resistant steel (stainless steel) is suitable for all groups of parameters.
- thermoplastic (PE, PVC) is unsuitable for the sampling of organic compounds, but is suitable for the other applications.
- fluoropolymer (PTFE, TFE) is suitable for all groups of parameters.

The sample bottles must be clean and made of the proper material and of the correct size to transport and store waste water samples. A proper bottle should be used for each group of pollutant:

Pollutant	**Bottle**	**Volume (minimum)**
Metals	Plastic	50 ml
VOC	Glass	40 ml (vials 100% off)
Total hydrocarbons Fats and oils Chlorinated / phosphoric pesticides Phenols and / or aldehydes IPA	Dark glass	250 ml
Microbiology - E.Coli	glass / plastic sterile	300 ml – 1 l

Handle the following filling rate of the sample bottle:

- Complete the bottle for volatile parameters for 100% off;
- Do not fill the mineral oil bottle by more than 80%;
- Fill in the bottle for inorganic parameters for 90%.
-

- If the parameter to be analyzed is not known, go to the lowest fill rate of 80%.

Samples should be transported as soon as possible to the laboratory, however they should not be kept longer than 4 hours at temperatures above 10 ° C; as far as the samples for microbiological analysis are concerned, they should be maintained both during transport and in the laboratory at a temperature of 3- 5 °C.

A sampling lists and labels for the sampling bottles should be prepared in advance. The sampling lists contain all the information required for sampling such as:

- Name and object code of the loader;
- Description and code of the sampling point;
- Lab Info Number;
- Sampling method (stitch / collect);
- Analyse parameters;
- Conservation.

Use clean gloves and prevent the sample from being contaminated from the environment

9.4. Dealing with violations

Survey results on violations

A survey covering all aspects from permit procedure to inspection and sampling/analysis has been circulated within IMPEL members (Annex 2). 19 member states and country regions answered the survey. The overall results are described in Chapter 9.

Two basic systems of dealing with the violation can be distinguished among the answers to the survey:

- one of them is the case where further proceedings are conducted by the Authority,
- the second is where proceedings are handled over to police, public prosecutor and competent judicial authorities.

Breaches in the Self monitoring Report

If a breach of the limit value is declared within the self-monitoring report, provided by the operator to the competent authority, these data are possible to be used to take further actions. There is no country when that data cannot be used in any action. But that actions differs in countries. This may be a penalty imposed directly on the basis of these measurements or measurements may be the introduction to other verifying actions leading to penalty.

In the first situation after receiving measurement results for an appropriate period of time, Inspection Authority is checking it and, in case of non-compliance with the values set in the permit, a decision imposing an administrative penalty is issued. At the request of the operator, the Authority may postpone the deadline for payment of the administrative penalty if it carries out the enterprise (project/operation) which may constitute a basis for postponing the penalty. If the enterprise has been completed in due time, as confirmed by the quality of the purified effluent, the penalty is discontinued. The operator has also the right to appeal against the decision imposing the penalty to the second instance authority.

In the second situation, a breach of the limit values declared within the self-monitoring report does not constitute itself an automatic evidence of the violation. It has to be technically verified and that should be performed by the inspection authority. Often after submitting self-monitoring report with declared breach of emission limit value competent authority make action for verifying non-compliance and it this is done by asking the operator for more details or by making site inspection. In some countries penalty can be set only after one inspection on the plant where those results are observed.

Self-monitoring reports are also used as tools for checking the compliance with the permit conditions.

If non-compliance is noticed from such reports than an inspection on site is undertaken in order to enforce the permit condition. Usually this means that the operator is punished by a penalty for breaching the permit conditions but also a permit suspension may be taken into consideration. Punishment may be imposed but two more analysis has to be done and the inspector has to be present during sampling. If the average value of three result (one from self-monitoring) exceeds the limits, then the authority can issue a penalty. When such a breach is reported, the Authority requests further corrective action to rectify that breach. Moreover, should the operations result in exceedance of the emission limit values indicated in the permit, the operator is required to designate a mixing zone as stipulated in the requirements of the Water Framework Directive or to apply for derogation from achieving the required emission levels.

Enforcement

Among countries in which permit is not issued by the same Authority that check compliance with permit conditions it is usually the inspector who conducts proceedings (but not in all cases).

In other systems competent authority itself can't issue a fine. If there are exceedances of the terms of approval, this will be excluded by the state/ the municipality - and may end with a police report and a fine. The police conducts investigations. If there has been a crime, police hands over the case to the public prosecutor. If the case goes to the court, the competent authority is called to the court as a witness. The fine is imposed by the court. Authority may also order a stop of the discharge of waste water.

In most countries the sanction for exceedance of wastewater discharge quality are imposed by inspection bodies on the basis of control measurements. In fewer cases penalties are imposed by permitting authority or other competent authority, usually after non-compliance are reported to that authority by inspection. Operator may have a right to ask for postponing the deadline for payment, to appeal to higher instance authority, to submit a complaint against penalty report to the competent court, to spread the penalty into installments. The smallest number of cases is when penalties are imposed only by court.

Type of punishment for exceeding the permissible conditions depends on the severity of the crime and if done on purpose or on pure negligence, and on the impact in the environment. Usually the punishment is to impose a fine. Only in cases where there is an imminent threat of damage to the environment or if operator does not restore the non-compliance situation or if it's a second breach, authority may issue decisions, like closure of the plant or part of it, withdrawal of the permit. Type of punishment:

- fine by authority (some with maximum upper limit, like for instance 4000 euros),

- monetary fines by court,
- jail,
- restriction operation,
- prohibiting operation by court,
- suspension of the permit,
- cancelation of the permit,
- remediate measures,
- closing down part or whole installation,
- official warning,
- order of penalty payment
- administrative enforcement,
- withdrawal permit,
- withdrawal of bank guaranties.

9.5. EMS Procedures

Particular importance is checking the Environmental Management System (EMS) that operator should implement. EMS are considered in every BAT conclusions, as Best Available Practice, but it is not compulsory having a EMS certification (EMAS, ISO14001), as far as could be an internal process. Checking compliance of EMS procedures is particularly relevant when the EMS is not certified.

It is fundamental checking how the operator is able to tackle possible malfunctions of the waste water treatment plant, causing environmental critical situations.

During the inspection visit, the sections of the waste water treatment plant have to be investigate, with the following main purposes:

- List of procedures/instructions of Environmental Management System (EMS) to understand how the process is covered by documentation
- List of procedures/instructions of Environmental Management System (EMS) to understand if severe weather conditions are tackled
- List of critical devices for the environment (e.g. parts, devices, instruments of measures in the treatment waste water plant) to focused the main environmental aspects
- Maintenance procedures and related registrations (check frequencies and manner registration on waste water treatment plant)
- Checking performance and taking corrective action. Does the company take action systematically following the examination of deviations and near deviations as a means to improve the compliance performance?
- Monitoring and measurement. Does the company communicate in this annual report the performance in relation to all relevant regulatory requirements?

- Environmental Emergency scenarios and related actions.

9.6. Relevant criteria to be considered for risk assessment (IRAM tool)

Pursuant to the Industrial Emission Directive (IED) all inspections should be planned in advance.

The competent authority must draw up inspection plans and programs for installations and establishments, including the frequency of site visits. These frequencies should be based on a systematic risk appraisal. Within the IMPEL project "Easy tools" a new rule based methodology was developed and tested, called Integrated Risk Assessment Method (IRAM).

Each installation is rated against impact criteria; when assessing the risk for IPPC (IED) installations examples of appropriate impact criteria include "Quantity/quality of water pollution".

Releases to water are therefore among the criteria identified to set priorities, and it is worth to mention how they are declined in the IRAM risk assessment:

4. Releases to water / off-site transport in waste water

Score	Definition
0	Activity **is not mentioned** in Annex 1 of the EPRTR Regulation and there are **no releases** to water or off-site transports in waste water
1	Activity **is mentioned** in Annex 1 of the EPRTR Regulation but **no threshold** of Annex 2, column 1b, is exceeded and there are **no other releases** to water or off-site transports in waste water
2	Activity **is or is not** mentioned in Annex 1 of the EPRTR Regulation, **no threshold** of Annex 2, column 1b, is exceeded but there are **other releases** to water or off-site transports in waste water
3	Activity **is mentioned** in Annex 1 of the EPRTR Regulation and **the sum** of the releases to water or off-site transports in waste water - normalised to the thresholds* of Annex 2, column 1b - is **>1**
4	Activity **is mentioned** in Annex 1 of the EPRTR Regulation and **the sum** of the releases to water or off-site transports in waste water - normalised to the thresholds* of Annex 2, column 1b - is **>5**
5	Activity **is mentioned** in Annex 1 of the EPRTR Regulation and **the sum** of the releases to water or off-site transports in waste water - normalised to the thresholds* of Annex 2, column 1b - is **>10**
* Ratio of release or off-site transport to threshold value	

10. Main results of the Survey

A survey has been handed out at the first stage of the project containing preliminary questions to MS about waste water treatment. There have been 21 replies from 17 countries. There is no such situation in any MS that parameters of the quality of treated wastewater are stated only in law. In majority of cases – 16 answers from 12 MS parameters are stated both in law and in permit. In 4 MS parameters are stated only in permit. There are many different systems regulating the manner in which waste water permits are issued. Also permits are issued by various Authorities, both as regards the administrative area to which the body is responsible and the competence of authority.

Of all countries where the discharge conditions are defined both in the law and in the permit, in 9 MS (13 answers) permit can specify more restrictive conditions than in law, and in 2 MS permit can specify more and less restrictive conditions. In 2 MS permit can not specify other than the law conditions. The reasons for having possibility of setting in permit more or less restrictive conditions are as follows. In these cases (and they are particular not regular situation) permit conditions are related to the state of the recipient water body (lower water quality than more restrictive conditions for waste water discharged) or to the quality of the water used in the industrial processes (higher quality parameters for raw water than higher quality parameters for waste waters).

There are more reasons for possibility of setting only more restrictive conditions in permit than those prescribed by law:

- situation where special care must be given to recipient bodies which belongs to sensitive areas or other areas of environmental importance.
- in terms of requiring monitoring of parameters which are not specifically indicated in law or impose stricter emission limit values;
- if Best Available Techniques allow to attain smaller values and also if facilities are located in specific delicate places;
- condition more restrictive than e.g. BREF/BAT-conclusions if it is necessary regarding WFD, which is implemented in an executive order which again in turn must be implemented in the permit;
- if water quality standards are not met by applying BAT-AELs.

Permit determining the quality parameters of discharged waste water (whether it is an IPPC or sector permit) is issued by the same authority that inspect installation in 10 MS (12 answers). Permit is issued and inspected by different authority in also 10 MS (12 answers). 2 MS (3 answers) occurred in these 2 groups. The reason is that in that 2 cases permit conditions can be checked both by issuing authority and by different one.

In majority of cases where permit is issued by the same authority than the one that check compliance, permit issues and check compliance is done by different departments or different group of people in one department or different team within the same authority or section who is checking compliance work and do research independent from the permitting section and management of both sections is different.

Advantages, which respondents of survey indicated, of that system over the other, is that experts who perform inspection may have better knowledge about the facility and can monitor the environmental performance of the facility more effectively. When it’s the same authority it provides an integrated approach and knowledge from the approval process is utilized in the inspection. Inspectors who write authorization know very well the operations and thus can effectively carry out their checks. This enables better handing over of the case files and continuous communication between permitting and compliance teams thereby facilitating mutual understanding of permit conditions and compliance issues such as enforceability. The authority who make the inspections knows the conditions established in the permit and the complete administrative file of the activity. More knowledge and experience in one authority, more exchange of knowledge, better transfer of information.

Advantages of the system where permit is issued by different authority than the one that check compliance with permit conditions is improving the transparency on the decisions and avoiding corruption. Disadvantages is that issuing authority may not know an installation good or even does not see an installation at all. That system increases the need of communication between authorities which results in amount of correspondence between authorities and extended time for writing permit. Notwithstanding respondents indicated involving the inspecting authority in decision making process as a good habit.

Analytical measurements of the discharged treated waste water are conducted by operator (itself or by hired third party laboratory), by inspection authority (itself or by hired laboratory).

The operator is responsible for performing monitoring in all 16 MS (20 answers) who responded to the survey. Regarding countries where permit issue and inspect different authority, operator is also responsible for sending results to permitting authority in 8 MS (12 answers) and in 4 MS for sending results to inspection authority. It means in 3 of that MS operator is responsible to send results to both permitting authority and inspecting authority. In 4 MS operator is responsible for sending results to permitting/inspecting authority.

The inspection authority have a checklist to perform an inspection in an industrial waste water treatment plant in 7 MS (11 answers). It can be either dedicated/separate checklist or part of complex checklist, checklist made individually for purpose of installation. Inspection authority doesn't have a checklist in 8 MS. There are cases where inspection of the industrial waste water treatment plant is included in the inspection of the whole industrial plant and no checklists are used but an agenda for the inspection. Also there are cases where no such standard checklists exist and case specific checklists are prepared using the particular permit and making reference to previous on site inspections before any inspection at such an installation.

Sampling and analysis should be performed by an accredited laboratory in every MS, but not in all cases not accredited sampling or not accredited measurements are treated as invalid. It might be some exceptions, although very rare or special approval has to be issued. In court that analysis or measurements could be easily challenged or just would be unacceptable. In some countries measurements or sampling without accreditation is the basis for issuing a decision imposing an administrative penalty.

	Only law	Only permit	Both	Permit can specify only more restrictive cond	Permit can specify more and less restrictive cond	No more no less	Permit issue authority = inspection	Permit issue authority ≠ inspection
Turkey			+			+	+	
Cyprus		+?	+	+			+	
Romania			+		+			+
Czech republic			+	+			+	+
Denmark		+					+	
Estonia			+	+				+
Slovak republic			+	+			+	
Slovenia			+			+		+
Finland		+						+
Portugal			+		+		+	+
Malta			+	+			+	
Spain (Navarra)			+	+				+
Spain (Galicia)			+	+			+	(+)
Spain (Castilla la Mancha)			+	+			+	
Spain (Cantabria)			+	+				+
Spain (Andalucia)			+	+	(+)		+	
Netherland		+					+	
Italy			+	+				+
Poland			+	+				+
Ireland		+			+		+	
Belgium (Walloon Region)		+				+		+

Annex 1: Checklist on wastewater treatment plant inspection

Introduction

This is an extensive draft checklist, so a selection of questions should be made previous to inspection. A part of the work required to cover all the reported information is a desk work.

The following check list has been divided in the following Parts:

PART 1: STANDARDIZED INFORMATION TO BE FACILITATED BY OPERATORS WHEN ACTUALISING A PERMIT

PART 2: ENVIRONMENTAL INSPECTION CHECKLIST FOR INDUSTRIAL WASTE WATER

PART 3: GENERAL REQUIREMENTS, ACCREDITATION LABORATORY AND METHODS

GENERAL INFORMATION ABOUT THE INSTALLATION

Date of inspection:	
Inspection typology:	*Routine or non-routine environmental inspections*
Installation:	
Address:	
IPPC category:	
n. of permit:	
IPPC referent:	
E-mail:	
Phone number:	

Part 1: Standardized information to be facilitated by operators when actualising a permit

This Part of the checklist is based on best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for common waste water and waste gas treatment/management systems in the chemical sector (CWW BREF).

Permit authorities should ask operators to facilitate all the information in a standard form. In that way, inspectors verification task could be tuned up to detect possible non compliances.

Please note that the BAT may refer to the individual chemical production plant, to the individual waste water streams from the plants or to individual pre-treatment plants. This implies that the assessment of BATs that do not refer to the combined effluent or the management of the whole chemical site has to be repeated for any individual point of reference. Before applying the check list, to avoid any misunderstanding, authorities should clarify the point of reference for the individual BATs with the operator.

In case BAT are legally implemented as General Binding Rules in respective national legislation, the check list may be modified to rather refer to the corresponding piece of national legislation.

Some of the BAT (e.g. BAT 12) ask to use an appropriate combination of techniques which does not necessarily mean to apply all of the named techniques. The checklist enables the assessment of the individual techniques; this step needs to be completed by an assessment of the applied combination.

COMMISSION IMPLEMENTING DECISION (EU) 2016/902 of 30 May 2016				
Establishing best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for common waste water and waste gas treatment/management systems in the chemical sector				
	Compliance with BAT	**Yes**	**No**	**Data/ Remarks/ Explanations**
BAT	Transposed into national law	☐	☐	

1. Environmental management systems EMS				
BAT 1	In order to improve the overall environmental performance, BAT is to implement and adhere to an environmental management system (EMS) that incorporates all of the following features:			
	Compliance with BAT	**Yes**	**No**	**Data/ Remarks/ Explanations**

iv	**Implementation of procedures paying particular attention to:**			
	Certified by Independent Body	☐	☐	
	• EMAS • ISO 14001	☐	☐	
f	Effective process control	☐	☐	
g	Maintenance programmes Maintenance of records	☐ ☐	☐ ☐	
h	Emergency preparedness and response	☐	☐	
i	Safeguarding compliance with environ-mental legislation	☐	☐	
v	**Checking performance and taking corrective action, paying particular attention to:**			
a	monitoring and measurement (see also the Reference Report on Monitoring of emissions to Air and Water from IED installations — ROM)	☐	☐	
d	Independent (where practicable) internal or external auditing in order to determine whether or not the EMS conforms to planned arrangements and has been properly implemented and maintained	☐	☐	
vii	Following the development of cleaner technologies	☐	☐	

BAT 2	In order to facilitate the reduction of emissions to water and the reduction of water usage, BAT is to establish and to maintain and inventory of waste water as part of the environmental management system (see BAT 1), that incorporates all of the following features:			
	Compliance with BAT	**Yes**	**No**	**Data/ Remarks/ Explanations**
i	**Information about the chemical production processes, including:**			
a	Chemical reaction equations, also showing side products	☐	☐	
b	Simplified process flow sheets that show the origin of the emissions	☐	☐	
c	Descriptions of process-integrated techniques and waste water/ treatment at source including their performances	☐	☐	
ii	**Information, as comprehensive as is reasonably possible, about the characteristics of the waste water streams, such as:**			
a	Average values and variability of: • *flow,* • *pH,* • *temperature,* • *conductivity*	☐ ☐ ☐ ☐	☐ ☐ ☐ ☐	
b	Average concentration and load values of relevant pollutants/parameters and their variability • *(e.g. COD/TOC,* • *nitrogen species,* • *phosphorus,* • *metals,* • *salts,* • *specific organic compounds)*	☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐	

c	Data on bio eliminability *(e.g. BOD, BOD/COD ratio, Zahn-Wellens test, biological inhibition potential (e.g. nitrification))*	☐	☐	

2. Monitoring				
BAT 3	For relevant emissions to water as identified by the inventory of waste water streams (see BAT 2), BAT is to monitor key process parameters (including continuous monitoring of waste water flow, pH and temperature) at key locations (e.g. influent to pre-treatment and influent to final treatment			
	Compliance with BAT	**Yes**	**No**	**Data/ Remarks/ Explanations**
a	Process parameters	☐	☐	

BAT 4	BAT is to monitor emissions to water in accordance with EN standards with at least the minimum frequency given below. If EN standards are not available, BAT is to use ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality.			
	Compliance with BAT	**Yes**	**No**	**Data/ Remarks/ Explanations**
a	Daily (*TOC / DOD / CSS / TN / Ninorg / TP)*	☐	☐	
b	Monthly *(AOX / Metals)*	☐	☐	
c	Toxicity *(To be decided based on a risk assessment, after an initial characterization)*	☐	☐	

3. Emissions to water				
3.1.	**Water usage and waste water generation**			
BAT 7	In order to reduce the usage of water and the generation of waste water, BAT is to reduce the volume and/or pollutant load of waste water streams, to enhance the reuse of waste water within the production process and to recover and reuse raw materials.			
	Compliance with BAT	**Yes**	**No**	**Data/ Remarks/ Explanations**
a	Reduce the volume and/or pollutant load of waste water streams	☐	☐	
b	Enhance the reuse of waste water within the production process	☐	☐	
c	Recover and reuse raw materials	☐	☐	

BAT 8

3.2	**Waste water collection and segregation**			
BAT 8	In order to prevent the contamination of uncontaminated water and to reduce emissions to water, BAT is to segregate uncontaminated waste water streams from waste water streams that require treatment.			
	Compliance with BAT	**Yes**	**No**	**Data/ Remarks/ Explanations**
a	Channel segregation system	☐	☐	

BAT 9	In order to prevent uncontrolled emissions to water, BAT is to provide an appropriate buffer storage capacity for waste water incurred during other than normal operating conditions based on a risk assessment (taking into account e.g. the nature of the pollutant, the effects on further treatment, and the receiving environment), and to take appropriate further measures (e.g. control, treat, reuse).

	Compliance with BAT	Yes	No	Data/ Remarks/ Explanations
a	Appropriate buffer storage capacity for waste water	☐	☐	

3.3	Waste water treatment			
BAT 10	In order to reduce emissions to water, BAT is to use an integrated waste water management and treatment strategy that includes an appropriate combination of the techniques in the priority order given below.			
	Compliance with BAT	**Yes**	**No**	**Data/ Remarks/ Explanations**
a	Process-integrated techniques	☐	☐	
b	Recovery of pollutants at source	☐	☐	
c	Waste water pre-treatment	☐	☐	
d	Final waste water treatment	☐	☐	

3.3.1	Waste water pre-treatment			
BAT 11	In order to reduce emissions to water, BAT is to pre-treat waste water that contains pollutants that cannot be dealt with adequately dur- ing final waste water treatment by using appropriate techniques.			
	Compliance with BAT	**Yes**	**No**	**Data/ Remarks/ Explanations**
a	Pre-treatment to protect the final waste water treatment plant *(e.g. protection of a biological treatment plant against inhibitory or toxic compounds)*	☐	☐	

b	Pre-treatment to remove compounds that are insufficiently abated during final treatment *(e.g. toxic compounds, poor-ly/non-biodegradable organic com- pounds, organic compounds that are pre- sent in high concentrations, or metals during biological treatment)*	☐	☐	
c	Pre-treatment to remove compounds that are otherwise stripped to air from the collection system or during final treatment *(e.g. volatile halogenated organic com-pounds, benzene)*	☐	☐	
d	Pre-treatment to remove compounds that have other negative effects *(e.g. corrosion of equipment; unwanted reaction with other substances; contamination of waste water sludge)*	☐	☐	
e	Is the pre-treatment as close as possible to the source in order to avoid dilution, in particular for metals	☐	☐	

3.3.2	**Final waste water treatment**			
BAT 12	In order to reduce emissions to water, BAT is to use an appropriate combination of final waste water treatment techniques.			
	Compliance with BAT	**Yes**	**No**	**Data/ Remarks/ Explanations**
	Preliminary and primary treatment			
a	Equalisation	☐	☐	

b	Neutralisation	☐	☐	
c	Physical separation *(e.g. screens, sieves, grit separators, grease separators or primary settlement tanks)*	☐	☐	
	Biological treatment (secondary treatment)			
d	Activated sludge process	☐	☐	
e	Membrane bioreactor	☐	☐	
	Nitrogen removal			
f	Nitrification/denitrification	☐	☐	
	Phosphorus removal			
g	Chemical precipitation	☐	☐	
	Final solids removal			
h	Coagulation and flocculation	☐	☐	
i	Sedimentation	☐	☐	
j	Filtration *(e.g. sand filtration, microfiltration, ultrafiltration)*	☐	☐	
k	Flotation	☐	☐	

iii	The combined treatment of waste water from different origins provided that the main pollutant load originates from activities specified in Section 4 of Annex I to Dir. 2010/75/EU	☐	☐	

3.4	**BAT-associated emission levels for emissions to water** *(applying at the point where the emission leaves the installation)*			
	The BAT-associated emission levels (BAT-AELs), for emissions to water given in Table 1, Table 2 and Table 3 apply to direct emissions to a receiving water body from:			
	Compliance with BAT	**Yes**	**No**	**Data/ Remarks/ Explanations**
i	The activities specified in Section 4 of Annex I to Directive 2010/75/EU	☐	☐	
ii	Independently operated waste water treatment plants specified in Section 6.11 of Annex I to Dir. 2010/75/EU provided that the main pollutant load originates from activities specified in Section 4 of Annex I to Dir. 2010/75/EU	☐	☐	
	BAT-AELs for direct emissions of TOC, COD and TSS to a receiving water body			

	Compliance with BAT (yearly average)	Yes	No	Data/ Remarks/ Explanations
a	Total organic carbon (TOC) = 10-33 mg/l[5] *(The BAT-AEL applies if the emission exceeds 3,3 t/yr)*	☐	☐	
b	Chemical oxygen demand (COD) = 30-100 mg/l *(The BAT-AEL applies if the emission exceeds 10 t/yr)*	☐	☐	
c	Total suspended solids (TSS) = 5,0-35 mg/l (*The BAT-AEL applies if the emission exceeds 3,5 t/yr)*	☐	☐	

	BAT-AELs for direct emissions of nutrients to a receiving water body			
	Compliance with BAT (yearly average)[6]	**Yes**	**No**	**Data/ Remarks/ Explanations**
a	Total nitrogen (TN) = 0,20-1,0 mg/l *(The BAT-AEL applies if the emission exceeds 2,5 t/yr)*	☐	☐	
b	Total inorganic nitrogen (Ninorg) = 5,0-20 mg/l *(The BAT-AEL applies if the emission exceeds 2,0 t/yr)*	☐	☐	

[5] The BATc allow for higher concentration levels under certain conditions

[6] BAT-AEL for TN and N inorg only apply to the effluents from biological treatment plants.

c	Total phosphorus (TP) = 0,50-3,0 mg/l *(The BAT-AEL applies if the emission exceeds 300 kg/yr)*	☐	☐	
	BAT-AELs for direct emission of AOX and metals to a receiving water body[7]			
	Compliance with BAT	**Yes**	**No**	**Data/ Remarks/ Explanations**
a	Adsorb able organically bound halogens (AOX) = 0,20-1,0 mg/l *(The BAT-AEL applies if the emission exceeds 100 kg/yr)*	☐	☐	
b	Chromium (expressed as Cr) = 5,0-25 µg/l *(The BAT-AEL applies if the emission exceeds 2,5 kg/yr)*	☐	☐	
c	Copper (expressed as Cu) = 5,0-50 µg/l *(The BAT-AEL applies if the emission exceeds 5,0 kg/yr)*	☐	☐	
d	Nickel (expressed as Ni) = 5,0-50 µg/l *(The BAT-AEL applies if the emission exceeds 5,0 kg/yr)*	☐	☐	

[7] There are several exemptions in the BATc of the CWW BREF which need to be considered.

e	Zinc (expressed as Zn) = 20-300 µg/l *(The BAT-AEL applies if the emission exceeds 30 kg/yr)*	☐	☐	

4. Waste				
BAT 14	In order to reduce the volume of waste water sludge requiring further treatment or disposal, and to reduce its potential environmental impact, BAT is to use one or a combination of the techniques given below.			
	Compliance with BAT	**Yes**	**No**	**Data/ Remarks/ Explanations**
a	Chemical conditioning *(i.e. adding coagulants and/or flocculants) or thermal conditioning (i.e. heating) to improve the conditions during sludge thickening/dewatering.*	☐	☐	
b	Thickening *(can be carried out by sedimentation, centrifugation, flotation, gravity belts, or rotary drums. Dewatering can be carried out by belt filter presses or plate filter presses).*	☐	☐	
c	Sludge stabilisation *(includes chemical treatment, thermal treatment, aerobic digestion, or anaerobic digestion).*	☐	☐	
d	Drying *(Sludge is dried by direct or indirect contact with a heat source).*	☐	☐	

5. **Emissions to air**				
5.1.	**Waste gas collection**			
BAT 15	In order to facilitate the recovery of compounds and the reduction of emissions to air, BAT is **to enclose the emission sources** and to treat the emissions, where possible.			
	Compliance with BAT	**Yes**	**No**	**Data/ Remarks/ Explanations**
	Emission sources enclosed	☐	☐	

BAT 6	BAT is to periodically **monitor odour** emissions from relevant sources in accordance with EN standards.			
	Compliance with BAT	**Yes**	**No**	**Data/ Remarks/ Explanations**
a	Dynamic olfactometry according to EN 13725	☐	☐	

BAT 21	In order to prevent or, where that is not practicable, to reduce odour emissions **from waste water collection** and treatment and from sludge treatment, BAT is to use one or a combination of the techniques given below:			
	Compliance with BAT	**Yes**	**No**	**Data/ Remarks/ Explanations**
i	Minimise residence times	☐	☐	
ii	Chemical treatment	☐	☐	

iii	Optimise aerobic treatment			
a	Controlling the oxygen content	☐	☐	

b	Frequent maintenance of the aeration system	☐	☐	
c	Use of pure oxygen	☐	☐	
d	Removal of scum in tanks	☐	☐	
v	**End-of-pipe treatment**	☐	☐	
a	biological treatment	☐	☐	
b	thermal oxidation	☐	☐	

Part 2: Enivironmental inspection checklist for industrial waste water

This checklist has been divided in the following sections:

- Installation Permits
- Waste water streams origin and pollution characteristics
- Sewer network
- Waste water treatment
- Cooling / steam water
- Rain water
- Changes in last 3 years
- Monitoring Plan Compliance
- Operating instructions
- Malfunctions and accidents prevention and correction measures
- Reporting

1.	**Installation Permits**			
	Questions	**Yes**	**No**	**Data / Comments / Explanations**
1.1	Activity permit ?	☐	☐	
1.2	Construction stage permit	☐	☐	
1.3	Discharge permit	☐	☐	
1.4	Sewer nets permit	☐	☐	

1.5	Does the entity have formal regulations for the introduction of waste water into the environment?	☐	☐	

2. Waste water streams origin and pollution characteristics (BAT 2, 8)				
	Questions	**Yes**	**No**	**Data / Comments / Explanations**
2.1	Identify the **processes** that produce industrial discharges	☐	☐	
2.2	Identify **Relevant Pollutants** produced in the industrial process	☐	☐	
2.3	Verify if there is any emergency **bypass**	☐	☐	
2.4	Is there consistence between total water consumption and total waste water?	☐	☐	
2.5	Check if the organization is authorized to treat the discharge of water coming from a different installation.	☐	☐	

Table of Waste water streams origin and pollution characteristics *(BAT 2, 8)*				
Wastewater partial streams	**Treatment**	**Amount m^3/yr.**	**Relevant pollutants and annual load**	**Verification Remarks**
Production wastewater				
Cleaning Waste water				
Sanitary wash water				

Polluted rain water				
Cooling / steam water				
Rain water				
Total waste water:m3/yr				

3. Sewer network (BAT 8, 9)				
	Questions	**Yes**	**No**	**Data / Comments / Explanations**
3.1	Map of water discharge pipelines with control points. **Sewer system, pipelines and points of discharge** correspond to the description and map of installations? *(E.g. shaft constructions, culverts, wastewater pumps, flood pumps, pressure pipes without pressure network, installations in pressure and vacuum dewatering networks, rainwater drainage systems, rainwater drainage systems, rainwater drainage systems, rainwater drainage systems, rainwater drainage basins)*	☐	☐	
3.2	Is there any preventive system for rainwater accumulation?	☐	☐	

4. Waste water treatment (BAT 11, 12, 13)				
	Questions	**Yes**	**No**	**Data / Comments / Explanations**
4.1	Flow chart (data sheet) of water discharges	☐	☐	
4.2	Bypass, discharges without established treatment, dilution, areas without treatment. Was any of these detected during inspection?	☐	☐	

4.3	**Treatment systems**. Indicate which kind of treatment plant: 1. batch system, continuous system, 2. sedimentation, 3. anaerobic stage, 4. nitrification, 5. denitrification, 6. intermediate clarification, 7. elimination, 8. filtration, 9. separators, 10. neutralization, 11. oxidation, 12. boiling, 13. flocculation / precipitation, 14. stripping, 15. ion exchange, 16. reverse osmosis, 17. membrane filtration, 18. Sludge treatment: 19. thickening, 20. sludge drying ……………………	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	
4.4	Treatment plant 1	☐	☐	
4.5	Treatment plant 2	☐	☐	

4.6	- Treatment systems and devices are operative - integrity of the sewage pipelines through video inspection	☐	☐	

5. Cooling / steam water				
	Questions	**Yes**	**No**	**Data / Comments / Explainations**
5.1	Identify chemical characteristics of cooling water source	☐	☐	
5.2	• Select feasible cooling water treatment (chemical composition) using less hazardous chemicals or chemicals that have lower potential for impact on the environment. • Apply less corrosion-sensitive material/Analysis of corrosiveness of process substance as well as of cooling water to select the right material	☐	☐	
5.3	Optimize dosage regime by monitoring of cooling water and systems conditions			

6. Rain water				
	General location data:			
	Questions	Yes	No	Data / Comments / Explanations

6.1	Does rainwater accumulate?	☐	☐	If so, classification of rainwater according approval regarding pollution ☐unloaded (class I) ☐low loaded (class II) ☐high loaded(class III)
6.2	Discharging rainwater together with wastewater? E.g. 1. drainage water, 2. mixed water discharge (acc. state of the technique), 3. cooling water, 4. waste water from steam generation, inorganic weakly contaminated or treated wastewater 5. other	☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐	
6.3	Rainwater treatment available? E.g. 1. oil separator, 2. rain clarifier, 3. rainwater retention basin, 4. storage space canals, 5. seepage wells, 6. rigoles, 7. seepage shafts 8. other	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	If so, which one?
6.4	Treatment plant 1	☐	☐	
6.5	Treatment plant 2	☐	☐	

7. :hanges in last 3 years

n.	Question/Compliance	Yes	No	Data/ Remarks/ Explanations
7.1	Have there been changes in technology or installations?	☐	☐	
7.2	Have any changes in procedures or auxiliary materials?	☐	☐	
7.3	Have the changes been reported to the competent authority?	☐	☐	
7.4	Does exist a procedure to manage changes	☐	☐	
7.5	Changes verified:	☐	☐	

8. Monitoring Plan Compliance (BAT 3, 4, 5, 6, 12) - As in Integrated Environmental Authorisation							
(1) **Kind of Waste water**	(2) *Treatment*	Discharges and control points			(4) Monitoring Plan		
		(3) receiver	X	Y	Parameters	Periodicity	By Who?

(1) Industrial / domestic like /industrial rain water / rain water / Also indicate possible monitoring in basin waters.

(2) Yes / No *(Treatment explanation further).-*

(3) Public sewage /Private sewage / River basin /lake basin / Sea basin

(4) Control plan as established in permit

Check compliance since last inspection (<3 years)				
n.	**Question/Compliance**	**Yes**	**No**	**Data/ Remarks/ Explanations**
8.1	• Is self-monitoring done correctly? • Are the monitoring values complied?	☐	☐	
8.2	Is the prescribed frequency of inspections acc. the relevant installation complied? (E.g. secondary determinations)	☐	☐	
8.3	Characteristics of control point, in particular the accessibility of the operator and instruments	☐	☐	
8.4	Were measurements and determination of characteristic data carried out acc. prescribed procedures or equivalent ones?	☐	☐	
8.5	Are necessary devices and measuring instruments available to determinate characteristic data acc. to the approval conditions?	☐	☐	

8.6	What are the specifications for periodical maintenance of the measuring devices? Where is the maintenance handling documented?	☐	☐	
8.7	Was the verification of measuring accuracies carried out acc. the approval?	☐	☐	
8.8	Is the amount of wastewater discharged into the environment complies with the permit conditions?	☐	☐	
8.9	Are necessary equipment and measuring devices available to monitor the operating conditions of the permit?	☐	☐	
8.10	Are the quality measurements of discharged wastewater carried out at the frequency specified in the permit?	☐	☐	
8.11	Are the monitoring values (of the last 3 years) complying with Admissible Emission Levels?	☐	☐	
8.12	Measuring devices accuracies are verified periodically?			
8.13	Are measuring instruments connected to a permanently occupied measuring room?	☐	☐	
8.14	Is the sampling performed by an operator who has a quality management system certificate? or automatically by a metrological sampler?	☐	☐	

8.15	Sample analysis are made by a laboratory covered by a quality management system certificate and accredited for all tested pollutants?	☐	☐	

9.	Operating instructions (BAT 1, 3, 7)			
	Questions	**Yes**	**No**	**Data / Comments / Explanations**
9.1	Aspects considered in written operating instructions of the installation	☐	☐	
9.2	Supervisor of the technological process of the treatment plant and maintenance of the cleaning equipment?	☐	☐	
9.3	Are operating instructions available?	☐	☐	
9.4	Does the supervision of the correct operation of the treatment plant cover all the parameters specified in the water permit?	☐	☐	
9.5	Verify if there are monitoring systems that control the flow, the mode of maintenance/calibration, and the recording of those items.	☐	☐	

9.6	Is an operating journal available (possibly digital)? Can the operating journal be viewed retroactively for 3 years? Have been special operating conditions entered into the operating journal?	☐	☐	
9.6	Are cases of exceedance of admissible levels recorded?	☐	☐	
9.7	Are there procedures for calibrating and maintaining measuring equipment?	☐	☐	
9.8	• Are existing regulations on maintenance, control, self-monitoring etc. considered? • Where are these regulations documented? • Are the maintenance, controls and measurements carried out and documented by the operator?	☐	☐	
9.9	Was the staff trained periodically?	☐	☐	
9.10	What are the specifications for periodical maintenance of the measuring devices? and how it is handled an emergency bypass	☐	☐	

10. MALFUNCTIONS AND ACCIDENTS PREVENTION AND CORRECTION MEASURES (BAT 17, 9)				
n.	**Question/Compliance**	**Yes**	**No**	**Data/ Remarks/ Explanations**

10.1	• Have malfunctions occurred since the last monitoring? • Have any contaminations occurred in the water body during the malfunctions?	☐ ☐	☐ ☐	
10.2	• Are sufficient retention capacities in case of malfunctions available? • What precautions have been taken to avoid repetitions?	☐ ☐	☐ ☐	
10.3	Which way ensures that malfunctions of the wastewater treatment plant are promptly reported to the competent authority	☐	☐	
10.4	Are the parameters of the treatment plant specified in certain intervals (maximum / minimum) and connected to the alarms?	☐	☐	
10.5	Are there procedures to remove irregularities if admissible (acceptable?) levels are exceeded?			

11 Reporting				
n.	**Question/Compliance**	**Yes**	**No**	**Data/ Remarks/ Explanations**
11.1	Is the responsible of waste water treatment plant reported to the environmental protection authority?	☐	☐	

11.2	Are the results of monitoring of quality and quantity of discharged wastewater submitted to the environmental protection authority on the correct forms and deadlines?	☐	☐	
11.3	Have the malfunctions /incidents been reported to the competent authority? Declaration of conformity by operator	☐ ☐	☐ ☐	

12 Severe weather conditions				
n.	**Question/Compliance**	**Yes**	**No**	**Data/ Remarks/ Explanations**
12.1	Does the EMS contain procedures to tackle severe weather conditions?	☐	☐	
11.2	Is the installation equipped with storm tanks and pumping system to tackle severe rainwater conditions?	☐	☐	
11.3	Is an Emergency discharging system present in the installation? How often has it been opened to discharge untreated waste water due to severe rainwater conditions?	☐	☐	

Part 3: General requirements, accreditation laboratory and methods

The purposes of this Part of checklist is to specify general requirements national and international and the criteria used in the assessment of laboratory and methods.

The general criteria for accreditation of laboratories are found in ISO/IEC 17025-2005, General requirements for the competence of testing and calibration laboratories.

The main benefits of Accreditation are:

- Formal recognition of competence of a laboratory by reputed accreditation body in accordance with international criteria.
- Better control of laboratory operations and feedback to system and are technically competent.
- Increase of confidence in testing/calibration data and personnel performing work.
- Savings in terms of time and money due to reduction or elimination of the need for re-testing of products.
- Potential increase in business due to enhanced customer confidence and satisfaction.

Main definitions

Accuracy: A measure of the degree of conformity of a value generated by a specific procedure to the assumed or accepted true value and includes precision and bias.

Audit: A systematic and independent examination to determine whether quality activities and related results comply with planned arrangements and whether these arrangements are implemented effectively and are suitable to achieve objectives. Bias: The difference between the expectation of the test results and an accepted reference value.

Calibration: Comparison and adjustment to a standard of known accuracy. The set of operations which establish, under specific conditions, the relationship between values of quantities by a measuring instrument or measuring system, or values represented by a material measure or a reference material, and the corresponding values realized by standards

Limit of quantitation (LOQ): Defined from a regulatory perspective as the lowest concentration tested and quantified such that an unambiguous identification of the analyte can be proven and at which an acceptable mean recovery with an acceptable relative standard deviation (RSD) is obtained

Method: A document that provides detailed "how to" instructions to accomplish a task.

Method validated: A method whose performance characteristics (selectivity and specificity, range, linearity, sensitivity, ruggedness, accuracy and precision and quantitation and detection limits) meet the specifications related to its intended use.

Quality Assurance: All those planned and systematic actions necessary to provide adequate confidence that a product or service will satisfy given requirements for quality.

Quality Control: The operational techniques and activities that are used to fulfill requirements for quality.

Quality System: The organizational structure, responsibilities, procedures, processes and resources for implementing quality management.

Requirements				
n.	**Question/Compliance**	**Yes**	**No**	**Data/ Remarks/ Explanations**
12.1	OVERVIEW OF LABORATORY QUALITY SYSTEM • Is the laboratory accredited? • Is the documentation of quality system based on the requirements of ISO 17025?	☐ ☐	☐ ☐	
12.2	LABORATORY MANAGEMENT Are the methods for analysis of parameters of interest accredited?	☐	☐	
12.3	Is there a nominated manager who is suitably qualified and experienced? Is there a suitably qualified quality control manager responsible for all quality control activities in the laboratory?	☐ ☐	☐ ☐	

12.4	STAFF COMPETENCY Is the laboratory manager supported by an adequate number of qualified staff, trained in the principles and practice of relevant areas of analysis? Is a training procedure in place for laboratory staff? (This procedures should cover both analytical procedures and the relevant principles and practice of analysis, including calibration and internal and external analytical quality control)	☐ ☐	☐ ☐	
12.5	Does the quality manager conduct audits to assess compliance with systems and methods?	☐	☐	
12.6	EQUIPMENT&CALIBRATION Is a documented calibration program in place for all necessary equipment? (As well as major pieces of instrumentation this should includes all laboratory items e.g.pipettes, ovens) Are calibration records current for all equipment and maintained on file?	☐	☐	
12.7	Is a documented maintenance program in place in accordance with manufactures/suppliers recommendations for equipment utilized?	☐	☐	

12.8	OVERVIEW OF ANALYTICAL METHODS • Are documented standard operating procedures in place for each test method? • Are all relevant procedures based on reference standard methods (as defined in the licence)? • Is a copy of relevant standard available on-site?	☐ ☐ ☐	☐ ☐ ☐	
12.9	INTERNAL QUALITY CONTROL Does the Laboratory have a documented internal quality control procedure in place? Are AQC subject to evaluation (are Charts maintained, are action taken up on failure)?	☐	☐	
12.10	EXTERNAL QUALITY CONTROL Is the laboratory a participant in a laboratory proficiency scheme?	☐	☐	
12.11	METHOD VALIDATION Is a written methodology in place to determine the performance characteristics of test methods under the following headings? • Limit of Quantitation • Accuracy • Precision • Uncertainty of measurement • Range &Linearity System Suitability	☐ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐	

12.12	ENVIRONMENTAL CONDITIONS • Is the laboratory ventilated to reduce the levels of contamination. • Is the laboratory tested to control humidity and temperature and work space temperature and test humidity are monitored. *The recommended relative humidity in the test area is 45-50% RH and the temperature in the test area is 20-25°C.*	☐ ☐	☐ ☐	

Annex 2: Answers to the survey

MEMBER STATE	ORGANIZATION	DRAFTER	ROLE OF THE DRAFTER
The Netherlands	Ministry of Infrastructure and the Environment	David Vroon	Advisor/consultant industrial discharge permits
Turkey	Ministry of Environment and Urbanization Of Turkey	Şenay Aslan	Inspector
Romania	National Environmental Guard	Florin Homorean	Commissar (inspector)
Cyprus	Department of Environment	Chrystalla Stylianou	Head of the Water and Soil Pollution Control Sector
Czech rep.	Czech environmental inspectorate	Tomáš Augustin	Environmental inspections coordinator
Denmark		Mette Lumbye Sørensen	
Estonia		Silva Prihodko	
Slovak Republic	The Slovak Environmental Inspectorate (SEI)	Peter Šimurka	Head Inspector
Slovenia	Inspectorate of the Republic of Slovenia for the Environment and Spatial Planning	Vladimir Kaiser	Director of the environmental inspection
Finland	Centre for Economic Development, Transport and the Environment for Southeast Finland	Jaakko Vesivalo	Head of Unit

Malta	Environment & Resources Authority	Simon Farrugia	Senior Officer (Environmental Permitting)
Spain (Navarra)	Departamento de Desarrollo Rural, Medio Ambiente y Administración Local	Juan Pablo Belzunegui Otano	Inspector
Spain (Castilla La Mancha)	Ministry of Environment and Spatial Planning. Regional Government of Castilla La Mancha	Olga Villegas Sánchez	Inspection
Spain (Cantabria)	Cantabria's Government	Patricia Portilla Malfaz	Inspector of Installations with Environmental Integrated Authorization
Spain (Andalucia)	Regional Environment Ministry of Andalucía	Luis G. Viñas Bosquet	Planning and Management of Hydraulic Public Domain SubDirector
Spain (Galicia)	Ministry of Environment, Spatial Planning and Infrastructures of the Regional Government of Galicia	Iñaki Bergareche	Environmental Inspector
Portugal		Roberto Valadares	
Poland	Chief Inspectorate for Environmental Protection	Małgorzata Budzyńska	Senior Specialist
Italy	Sardinian Regional Environmental Protection Agency (ARPAS) - ISPRA	Romano Ruggeri - Roberto Borghesi	Environmental inspector
Ireland	Environmental Protection Agency (EPA) Ireland	Martin O'Reilly	Enforcement Inspector (inspections)
Belgium (Walloon region)	Agriculture, natural Ressources and Environment operational general Directorate	Olivier Dekyvere	Environmental inspector

QUESTION1: PERMIT

Are parameters of the quality of treated wastewater stated in law? In permit? Other way? How?

TURKEY	Defined in Bylaw and in permit. Also by special provision and communiques. (e.g. some communiques for sampling, analyzing, wastewater treatment, sensitive regions, and some kind of industrial wastewater control.)
CYPRUS	The parameters of the quality of treated wastewater are stated in the Permit. If the treated wastewater is discharged to the recipient water body or soil, parameters are laid down in the Waste Discharge Permit or in the Industrial Emission Permit if the installation falls under the provisions of the IED.
ROMANIA	The quality parameters for waste water are stated both in the law (Government Decision) and in the permit. By the Government Decision no 188/2002 is established maximum allowed concentration for many quality parameters; these maximum concentrations differ on the place of discharge (municipal sewerage or directly to a water body, e.g. river). By the permit are set maximum allowed concentration for specific parameters that characterise the waste waters from a certain installation.
CZECH REPUBLIC	In legislation and In permit
DENMARK	If the waste water is discharged to the recipient it's part of the permit. Are the waste water discharged to public waste water treatment plants it's regulated in a permission granted by the municipality. The permit is either approved by the state or municipality depending om the type of industry.
ESTONIA	In law and in permit.
SLOVAK REPUBLIC	Yes. In law – Water Act, BAT Conclusions. In permit
SLOVENIA	Both in law (actually it is a decree) and in permit.

FINLAND	In permit
PORTUGAL	The limit values are established in the water permit that is autonomous and included as one annex of the environmental permit on IPPC installations. The law states also quality parameters for wastewater on non-IPPC installations, that are included on the water permit also.
MALTA	They are always specified in permit and based on national guidance documents and legislation such as the Water Policy Framework Regulations LN 194 of 2004 as amended transposing the Water Framework Directive (WFD) and related legislation. Moreover, consideration is taken on the type of activity being carried out and the nature of the effluent generated by the specific process within the installation which may require the monitoring of additional parameters. The parameters identified as requiring monitoring from a specific installation are included as part of the permit together with the associated emission limit vales, frequency of testing and reporting requirements.
SPAIN (NAVARRA)	Some parameters are specifically stated in permit. These parameters must be periodically controlled according to permit. General parameters are stated in law. This must be controlled only if there is any problem or question which forces its analysis, but in a general way must be attained
SPAIN (GALICIA)	In permit. If the treated waste water is discharged to the recipient body, parameters are laid down in the permit, either in the integrated environmental permit (IEP) in IPPC/IED installations or in the specific discharge permit issued by the Water Authority at basin level in non IPPC/IED installations. IEPs are issued by Regional authorities.
SPAIN (CASTILLA LA MANCHA)	If the wastewater destination is the municipal network the limits are stated by the city council. If the wastewater destination is the river the limits are stated by the national government.

SPAIN (CANTABRIA)	The parameters of quality of treated wastewater are stated in law, in the Stated legislation for Public domain hydraulic (mainly rivers) and by the autonomous community of Cantabria legislation for waters of discharge to collector or coast. The representative parameters are established in permits and could be more restrictive than law. These permits established the controls and analysis that should be done.
SPAIN (ANDALUCIA)	Both, in law -european, national and regional-, and in permits. The main applicable legislation (non-exhaustive list) are the following: National law: • Real Decreto Legislativo 1/2001, de 20 de julio, por el que se aprueba el texto refundido de la Ley de Aguas. • Real Decreto 849/1986, de 11 de abril, por el que se aprueba el Reglamento del Dominio Público Hidráulico, que desarrolla los títulos preliminar I, IV, V, VI y VII de la Ley 29/1985, de 2 de agosto, de Aguas. Regional law: • Ley 9/2010, de 30 de julio, de Aguas para Andalucía. • Decreto 109/2015, de 17 de marzo, por el que se aprueba el Reglamento de Vertidos al Dominio Público Hidráulico y al Dominio Público Marítimo-Terrestre de Andalucía. European law: • Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy. Best Available Techniques (BAT) reference documents (BREFs)
NETHERLAND	For bigger installations/plants in individual permits. They are based on BAT-AELs, stated in the BREFs. Smaller installations/plants sometimes have general binding rules (specific parameters) for the quality of the treated waste water. They are also based on BAT-AELs.
ITALY	Both in low and in permits. The National Decree n.152/06 establishes maximum allowed concentration for water discharge into water bodies and sewage.
POLAND	Both in low and in permits
IRELAND	Yes in the permit. Emission limit values (ELVs) are outlined in the permits schedule. Enabling conditions specify the interpretation of the ELVs such as composite versus grab samples,

	allowable number of exceedances (8 out of 10 consecutive samples) etc.
BELGIUM	The parameters of the quality of wastewater discharge are stated in the permit. Sometimes, sectorial conditions set some emission limit values for wastewater discharge. In some cases, plant manager has to build a water treatment plant to reach the emission limit values.

QUESTION 2: PERMIT

Can permit specify more / less restrictive discharge conditions than law?

TURKEY	No, not in permit. But in some region, more strict discharged water quality standards are defined by special provision than in bylaw according to receiving water body pollution level
ROMANIA	In some specific cases the conditions established throughout the permit can be more or less restrictive than the condition established by law. In these particular cases the permit conditions are related to the state of the recipient water body (lower water quality than more restrictive conditions for waste water discharged) or to the quality of the water used in the industrial processes (higher quality parameters for raw water than higher quality parameters for waste waters).
CYPRUS	Yes. The Permit can specify more restrictive discharge conditions than law in the cases where special care must be given to recipient bodies where belonging to sensitive areas or other areas of environmental importance.
CZECH REPUBLIC	Permit can specify more restrictive discharge conditions than law and can not specify less restrictive discharge conditions than law
DENMARK	There must always be a legal basis for the condition. But the condition can be more restrictive than e.g. BREF/ BAT-conclusions if it is necessary regarding WFD, which is implemented in an executive order which again in turn must be implemented in the permit.
ESTONIA	More restrictive discharge condition are in the permit
SLOVAK REPUBLIC	Permit can specify more restrictive discharge conditions than law and can not specify less restrictive discharge conditions than law.

SLOVENIA	No
FINLAND	The discharge conditions are set in the permit only.
PORTUGAL	The permit can establish its own values. Usually they are the same that the ones on the law
MALTA	Yes the permit may specify more restrictive discharge conditions than those prescribed by law in terms of requiring monitoring of parameters which are not specifically indicated in law or impose stricter emission limit values.
SPAIN (NAVARRA)	Yes if Best Available Techniques allow to attain smaller values and also if facilities are located in specific delicate places.
SPAIN (GALICIA)	Yes In some basins' Management Plans, more restrictive discharge conditions than in law are laid down. Water quality conditions for the recipient body may lead also to more restrictive discharge
	conditions.
SPAIN (CASTILLA LA MANCHA)	More restrictive limits can be stated in the permits by the government (city council or national government). Less restrictive limits cannot be stated.
SPAIN (CANTABRIA)	Yes, the permit can be more restrictive but not less restrictive than law.
SPAIN (ANDALUCIA)	Yes, permits can specify more restrictive discharge conditions than law. Conditions less restrictive than law only can be specified by permits in justified cases.
NETHERLAND	More restrictive: Possible if water quality standards are not met by applying BAT-AELs. Less restrictive: Possible if there are good reasons for derogation (e.g. specific production not mentioned in BREFs)
ITALY	IED permits can fix more restrictive threshold limits at the discharging point, according to the site-specific situation of the water body receptor (e.g. quality of the water of the river).
POLAND	Yes, more restrictive.

IRELAND	More restrictive emission limit values may be specified in scenarios where the assimilative capacity of the receiving water body dictates that they are required or where the discharge is entering a designated area such as a special area of conservation etc. Less restrictive emission limit values are only allowed under derogations in line with legislation and are only for a short period of time to allow for the installation of treatment technologies to comply with stricter limits.
BELGIUM	Parameters of the quality of treated wastewater are not stated in law. Discharge conditions are set according to the receiving environment: sewer or river. If the receiving environment is a sewer, the public operator for waste water treatment plant can set discharge conditions more or less restrictive than sectorial conditions. If the receiving environment is a river, discharge conditions are set according to the quality objectives of river under water directive.

QUESTION 3: PERMIT

Is the permit (determining the quality parameters of discharged waste water) issued by the same authority than the one that check compliance with permit conditions? Comment please to this, whether such a system is right / not good? Advantages / disadvantages

TURKEY	Same authority. But Permit issues are carried by permit department and compliance check is done by inspection department. In my opinion, this separate system is not so efficient. When permit and compliance check are issued by the same authority, experts may have more knowledge about the facility and can monitor the environmental performance of the facility more effectively.
ROMANIA	In Romania we have a particular situation: the conditions for waste water discharges are established by two permits: water management permit and environmental permit. Of course, the conditions are the same, but those two permits are issued by two different organizations: the water management permit is issued by the „Romanian Waters” National Administration (throughout of its river basin administrations) while the environmental

	permit is issued by National Environmental Agency (throughout its county agencies). The inspections are undertaken by National Environmental Guard (for both permits) and inspection bodies of „Romanian Waters" National Administration (but only in respect with water management permits). Overlapping of competences in both sectors permitting and inspection of waste water discharged could create issues in implementation and enforcement of water law. To prevent that joint inspections between National Environmental Guard and inspection bodies of „Romanian Waters" National Administration are foreseen and undertaken periodically, especially in case of big IED Installations.
CYPRUS	The permit is issued by the same authority (Department of Environment) with the one that checks compliance with permit conditions. However, the authority is consisted by two distinctive groups, the permitting and the inspection group, thus the permitting and the inspections are carried out by different people. The system is effective since the good communication between the two groups is quite important for the implementation of the Environmental Laws, for the preparation of adequate, solid permits and the performing of good inspections
CZECH REPUBLIC	Permit write - Regional authority Permit can check - Regional authority and Czech environmental inspectorate. Regional authority issue permit for IPPC installation and CEI is involved in permit process and can apply involving their requirements in the permit through statement submit to regional authority in issuing permit process. The system is proven.
DENMARK	It's the same authority that approves the permit and performs inspection (check compliance with the permit condition). I think it's a good idea that it's the same authority because it provides an integrated approach and knowledge from the approval process is utilized in the inspection. If the waste water is discharged to public waste water treatment plants is it regulated in a permission granted and inspected by the municipality. The public waste water treatment plant is regulated by a permission approved by the municipality and inspected by the state.
ESTONIA	No, the permit is issued and controlled by different authority. Our system helps to avoid any kind of corruption.

SLOVAK REPUBLIC	Yes. In Slovak republic the permit is issued by the permitting authority – The Slovak Environmental Inspectorate. The same authority also enforces the conditions of permit. This system is based on the Competence Act and is proven. Inspectors who write authorization know very well the operations and thus can effectively carry out their checks – this is advantage.
SLOVENIA	No. Agency issue the permit and inspectorate inspect. It is good except if it would be one person then an issuing authority would know an installation better. Usually an issuing authority does not see an installation at all.
FINLAND	At the moment no. From 2019 onwards permitting and compliance monitoring will be under the same roof.
PORTUGAL	The permitting and inspection authority are not the same in Portugal. Nevertheless the permitting authority can also do compliance check on water permit conditions. The system
	improves the transparency on the decisions, but increases the need of communication between authorities.
MALTA	Compliance with the permit conditions is checked by a different team within the same authority issuing the permit. This enables better handing over of the case files and continuous communication between permitting and compliance teams thereby facilitating mutual understanding of permit conditions and compliance issues such as enforceability.
SPAIN (NAVARRA)	If discharges are to public sewage system yes If discharges are to river directly not. Basin authorities are responsible

SPAIN (GALICIA)	Yes. Discharge permits are issued by Water Authorities of Water Basins. Permits may be issued by Water Authorities belonging to the Regional administration, in the case of basins within the boundaries of a region, or to the National administration, in the case of basins going beyond the boundaries of a region. If the treated waste water is discharged to the public sewage network, parameters are laid down in the permit issued by the municipality concerned. IEPs of IPPC/IED installations include permit conditions regarding waste water discharge and both IPPC Service (permitting Service) of the Regional Ministry of Environment and Spatial Planning and Water Authorities participate in drafting discharge conditions but Water Authorities have the final word. In checking compliance both Environmental Inspection of the Regional Ministry of Environment and Spatial Planning and Water Authorities participate but as in the case of permitting, the Water Authorities have the final word. The system is right when both Authorities are aligned in their action. Otherwise some overlapping and lack of coordination may arise.
SPAIN (CASTILLA LA MANCHA)	Yes, the permit is made by the same authority (Regional Deputy Environment Ministry of Castilla – La Mancha region, Spain) that the one that check compliance with permit conditions, but in the field of wastewater there is a feedback of the national government. In other words, there is a feedback. We send the reports to them and if they detect any non-compliance, they send it to us. It has the advantage that the same authority that knows the permit can do a better follow up of the delivered documentation. On the other hand, the work of the national government is very useful because they have a complementary task to ours.
SPAIN (CANTABRIA)	Depends of the competence of the place where the waste water is discharged. The Environmental Integrated Authorization (EIA) is issued by the same authority than the one that check compliance with permit conditions only when the waste water is competence of the Community of Cantabria. In the other cases (mainly discharges to the rivers), it is separated the authorization of the inspection. There are not problems in neither cases, although the advantage of been the same authority is a better transfer of information.

SPAIN (ANDALUCIA)	Yes, the same authority that issued the permit controls its compliance. In our opinion, that's a good system because the authority who make the inspections knows the conditions established in the permit and the complete administrative file of the activity.
NETHERLAND	Yes, by the same authority. This system works fine as long as the section who is checking compliance can work and do research independent from the permitting section.
	Management of both sections is different. Both sections have the same goal to protect the water quality. Advantage More knowledge and experience in one authority. More exchange of knowledge.
ITALY	In Italy the authority issuing IED permits is different from the one responsible of the inspections. Anyway, inspection competent authorities usually participate to the permitting procedure.
POLAND	Permit is issued and inspected by different authorities.
IRELAND	The permit is issued by the Office of Environmental Sustainability (OES) and enforced by inspectors in the Office of Environmental Enforcement (OEE). The offices, while functioning within the EPA, operate independently of each other. Where the discharge is to a sewer network system, a notification is issued to the sewer network authority (Irish Water) who set the emission limit values and these are incorporated by the EPA into the permit. The system works well and from a public viewpoint as there is a clear designation of roles between permitting and inspections.
BELGIUM	In general, the permit is issued by the municipal authority but it's always the regional authority which set emission limit values for water discharges and suggest these limit values to the municipal authority. The compliance with the permit is checked by the Police and Control Department working for the regional authority. This department is never involved in the drafting of a permit.

QUESTION 4: MONITORING

Who runs the analytical measurements of the discharged water? Operator / Inspection Authority / third part-who?

TURKEY	For self-monitoring, analysis is done by accredited laboratory. Results are checked during inspection. Besides, If discharged wastewater flow is more than 10.000 m3/day, the operator has to set online monitoring system which is connected to network of authority. In permit procedure and compliance check the samples are taken by the laboratory. Permit writer also has to be present and check the sampling procedure. Operator pays the analysis.
ROMANIA	All three: the operator has the duty to carry out its self monitoring obligation set up by the permit conditions and this could be done through its own laboratory or by third party laboratories; the „Romanian Waters" National Administration holds its own laboratories through which it can perform analytical measurements.
CYPRUS	The operator has the duty to carry out self-monitoring as set up by the permit conditions and this is done by accredited third party laboratories.; The Inspection Group (Department of Environment) is supported by the State General Laboratory, a public accredited laboratory. DoE may take samples during routine inspections under the control of the implementation of either the Waste Discharge Permits or Industrial Emissions Permits and carry them to SGL for analytical measurements
CZECH REPUBLIC	Third part – laboratory with accreditation. Operator can carry out measurement if have accreditation for sampling and analysing. Inspection authority - CEI – can take sample (but cannot use those measurement in administrative procedure) and submit sample to the laboratory for analysing.
DENMARK	Usually it is the third part and only in special cases the company. The results is send to the authority (state or the municipality depending on who has approved the permit). The third part is paid by the operator.
ESTONIA	The operator, who has the duty to carry out self-monitoring obligation (set up by permit conditions). In case of suspicion or problems – Inspection Authority.

SLOVAK REPUBLIC	An operator can perform a measurement if he has a sampling and analysis accreditation or can do so by an accredited laboratory. The inspection authority cannot take samples and is not equipped to analyze them. The inspection authority has an accredited laboratory for this purpose. Third part – Accredited laboratory.
SLOVENIA	Accredited laboratory.
FINLAND	Operator or third party (consultant) paid by the operator.
PORTUGAL	The operator can do its own measurements. The inspection authority takes samples when needed to do cross-check during inspections.
MALTA	The permit obliges the operator to ensure that analytical measures are taken in a determined manner at their own expense. Such monitoring is to be carried out by a 3rd party and at an accredited laboratory. Monitoring can only take place after the Authority approves a method statement in accordance with the permit conditions or in accordance with a monitoring plan submitted as part of the application documentation.

SPAIN (NAVARRA)	Operator – self control (is own laboratory) or external laboratory (UNE-EN 17.025) Inspection Authority – according to annual planning, samples are sent to external laboratory (UNE-EN 17.025) Organism – if water is discharged to rivers, basin authorities can take samples according to its own procedure
SPAIN (GALICIA)	All three: the operator has the duty to carry out its self-monitoring obligation set up by the permit conditions and this is done by accredited third party laboratories.; very few operators have accredited laboratories available and usually only for a limited number of parameters and not all of them. The Inspection Service is supported by the Environmental Laboratory of Galicia, (LMAG in its Spanish and Galician acronym) a public accredited laboratory of the Regional Ministry of Environment and Spatial Planning to take samples and to analyse them to carry out periodic analytical measurements during routine inspections of IPPC/IED installations.

SPAIN (CASTILLA LA MANCHA)	It is made by a third part, it is an authorized control organization (OCA).
SPAIN (CANTABRIA)	The type or frequency of the analytical measurements depends on the permit. The usual controls are: - Self monitoring by the operator (Installation owner)) - Scheduled or discretionary inspections by Inspection Authority - Monthly, quarterly, biannual or annual control by third part, accredited entity collaborating with the administration
SPAIN (ANDALUCIA)	The analytical measurements of the discharge water may be runs by operator (self monitoring), by authority (inspection) or by third-party. Third party are regional or national ministry authorised entities.
NETHERLAND	The operators of the installations and the Inspection Authorities run the measurements of the discharged waste water. Sometimes operators have outsourced these activities to third parties.
ITALY	Operator is obliged to perform self monitoring measurements at the discharging point: these are usually performed by a third part (accredited laboratory) on behalf of the operator. Inspection authorities do perform both sampling and analytical measurements; in Italy regional environmental inspection authorities own their own laboratory.
POLAND	The operator is required to ensure that emission measurements are carried out by an accredited laboratory. If the operator has his own accredited laboratory, he performs analysis himself (rarely) if not – third party (most) – accredited laboratory.
IRELAND	The operator is responsible for carrying out analysis of the discharged water at the frequency specified in the permit. This analysis may be carried out by the operators own in house laboratory or sub contracted to an external laboratory. The EPA carry out unannounced sampling and analysis as an independent assessment. This is usually once a year at a minimum. The analysis is carried out by the EPA's own analytical laboratory or, for certain parameters, may be subcontracted to an external accredited laboratory.

BELGIUM	The analytical measurements can be done by the operator and/or an external laboratory.

QUESTION 5: SELF MONITORING

Is the operator responsible for performing monitoring analysis and sending results to the authority? To the one who issued the permit? To other? Which is the frequency set in the permit to send analytical results to the competent authority?

TURKEY	See question 4
ROMANIA	As I indicated to the previous question, the operator is responsible for carrying out the self monitoring of its waste water discharges as well as to send the self monitoring results to the competent authorities, both inspection and permitting authorities. The frequencies for reporting are set up though permit conditions and may vary from quarterly to yearly depending on the size of the installation and its impact on water.
CYPRUS	The operator is responsible for carrying out the self-monitoring and this is done by third party laboratories. Results are submitted to the DoE once every year or whenever the DoE asks them, or during inspections. The frequencies for reporting are set up though permit conditions usually annually and immediately in case of no compliance.
CZECH REPUBLIC	Operator is responsible for performing monitoring analysis and in case of non-compliance operator have to inform inspection authority about breach of permit. Results (summary) from monitoring operator have to send every year as a part of self-monitoring report to the Regional authority (permit writer). Regional authority make selfmonitoring report public available via information system IPPC (web page). The frequency for sending self-monitoring report is set in permit (and in legislation too) and is yearly. Operator have not obligation send results from analytical measurement to the Czech environmental inspectorate automatically, but have to send measurements on request and have to submit measurement during inspection.
DENMARK	See question 4

ESTONIA	The operator is responsible for performing monitoring analysis to the permit giver. To the inspector upon request. The frequency is set in the permit, it can vary from monthly to annually.
SLOVAK REPUBLIC	Yes. Operator is responsible for performing monitoring analysis and in case of non-compliance operator have to inform inspection authority about breach of permit. Results (summary) from monitoring operator have to send every year as a part of self-monitoring report to the permit authority - SEI. The frequency for sending self-monitoring report is set in permit (and in legislation too) and is yearly. Operator have obligation send results from analytical measurement to the Slovak Environmental Inspectorate automatically, but have to send measurements on request and have to submit measurement during inspection.
SLOVENIA	Operator has to hire an accredited laboratory and then send report to issuing authority. Ones per year.

FINLAND	Yes, to the monitoring authority and to the concerned municipal environmental authority. The frequency is set in the permit and can vary from monthly to annually.
PORTUGAL	The operator is responsible to perform monitoring analysis and send its results to the permiting authority. The frequency is usually one trimester.
MALTA	Yes the operator of permitted installations is responsible to submit results of the performed analysis to the Authority which issued the permit and is checking on compliance (same Authority as described above) on an annual basis as part of an Annual Environmental Report. Each permit would then specify the type and frequency of the required analysis. For example, certain operators are required to collect and submit quarterly data on certain parameters discharged into the marine environment. Additional monitoring requirements other than the Annual Environmental Reports, and as stated in the environmental permit may also be submitted on a regular basis as agreed upon with the Authority.

SPAIN (NAVARRA)	Yes, usually is established in the permit Yes, to the one who issued the permit. For facilities not included in the 2010/75/UE Directive range, sometimes local authorities Every three or six months or every year.
SPAIN (GALICIA)	The operator is responsible for carrying out the self-monitoring and this is done by third party laboratories (with very few exceptions). Results are submitted to the IPPC Service (Permitting service). In IPPC/IED installations, the IPPC/IED Services provides all the results of self-monitoring to the Inspection Authority for routine inspections. The frequencies for reporting are set up though permit conditions and may vary from monthly, quarterly to yearly depending on the size of the installation and its impact on water.
SPAIN (CASTILLA LA MANCHA)	The operator is responsible for sending monitoring results to the authority. It sends these results to the same authority that issues the permit. The frequency depends on the importance of the plant. An usual frequency is one year.
SPAIN (CANTABRIA)	The operator is responsible for performing monitoring analysis and sending results to the authority who issued the permit with the frequency set in the permit (changeable: monthly, quarterly, biannual or annual).
SPAIN (ANDALUCIA)	Yes, the Andalusian law (Decreto 109/2005) regulates the operator obligation for performing analysis and sending to the authority who issued the permit. The frequency to sending the analytical results is established in each permit, although it is variable, from once in each year to even several sendings per month
NETHERLAND	An operator in the Netherlands is responsible for performing monitoring analysis, not for sending results to the competent authority (due to reducing administrative expenses for the industry). Incidents (with the possibility that permit conditions, e.g. limit values, are exceeded) should be reported to the authorities.
ITALY	The operator is responsible for performing monitoring analysis according to the contents of the Self Monitoring Plan which is part of the IED permit and sets frequencies, methods and parameters. Results are sent once per year (within the 30th of January) to the Authority who issued the permit, the inspection authority and other involved authorities (municipalities ecc.)

POLAND	Yes, to both: authority who issued the permit and inspecting authority. Measurement results are submitted: 1) in the case of periodic measurements performed more than once a month - within 30 days of the end of the quarter in which the measurements were made; 2) in other cases - within 30 days of the end of the measurement.
IRELAND	Yes. Depending on the results of analysis will dictate how reporting is carried out. Typical scenarios are as follows: (i) Non-compliant results: Where the results of analysis indicate an exceedance of an emission limit value the permit holder must immediately notify the EPA of this as an incident. The permit may specify that the sanitary authority/fisheries board etc. may also need to be notified. (ii) Compliant results: These may be submitted to the EPA for assessment at least in the Annual Environmental Report or more frequently such as quarterly or monthly as agreed with the Agency or as specified in the permit. Such monitoring is published on the EPA website.
BELGIUM	The operator is responsible for performing monitoring analysis provided in the permit and sending results to the responsible authority to check compliance.

QUESTION 6: INSPECTION

Does the inspection authority have a checklist to perform an inspection in a industrial water treatment plant? If yes, please attach it

TURKEY	Yes but not available in English
ROMANIA	Up to now we do not use such tools in our inspections..
CYPRUS	No, the DoE doesn’t have a specific checklist to perform an inspection in an industrial waste water treatment plant. The inspection is based on the terms of the IED Permit.
CZECH REPUBLIC	No
DENMARK	Some have – it’s part of the inspection of the whole industrial plant. Denmark has 98 municipalities and they decide for themselves how they are performing the inspection. There are some guidelines from the state.

ESTONIA	No checklist are used.
SLOVAK REPUBLIC	No. The inspection authority checks the individual permit conditions.
SLOVENIA	No
FINLAND	Inspection of the industrial waste water treatment plant is included in the inspection of the whole industrial plant. No checklists are used but an agenda for the inspection.
PORTUGAL	No
MALTA	No such standard checklists exist. Case specific checklists are prepared using the particular permit and making reference to previous on site inspections before any inspection at such an installation.
SPAIN (NAVARRA)	Yes

6	AGUAS RESIDUALES	S	N	NP
1	Los puntos de vertido existentes son los indicados en la Licencia de actividad			
2	Los efluentes existentes son los autorizados y están identificados según la Licencia			
3	Las instalaciones de tratamiento son los indicados en la Licencia			
4	Los elementos de control en continuo son los indicados en la Licencia			
5	Los elementos de control en continuo disponen de los certificados de calibración e instalación indicados en la Licencia			
6	Se anotan los datos de consumo de agua y volumen vertido de todos los contadores y caudalímetros con la periodicidad indicada en la Licencia			

7	Realización de controles reglamentarios según AAI	Se realizan con la periodicidad establecida en la Licencia			
		Se cumplen los VLE			
8	Realización de autocontroles según AAI	Se realizan con la periodicidad establecida en la Licencia			
		Se cumplen los VLE			

7	**EFLUENTES DE VERTIDO DE LA PLANTA**

PUNTO		**EFLUENTE**						**Realización de controles reglamentarios según Licencia**	**Cumple VLE**
Nº	**Destino**	**Nº**	**Nombre**	**Sistema tratamiento**	**Dispositivo control**	**Accesibilidad**	**Equipo medición continuo**		
1	Colector de residuales	1	Aseos y servicios	Ninguno	Arqueta que permita la inspección visual y la toma de muestras	--	--	--	--
2	Colector de residuales	2	Limpieza de maquinaria	EDARI:	Canal abierto normalizado	S	N	--	--
		3	Limpieza de maquinaria						

		4	Osmosis inversa del suero lácteo	Homogenización con aireación y tratamiento biológico	y medidor de caudal				
				MBBR					
3	Colector pluviales	5	Cubiertas y zonas pavimentadas	Ninguno	Ninguno	--	--	--	--
Observaciones									

SPAIN (GALICIA)	No, the Inspection Service doesn't have a specific checklist to perform an inspection in an industrial waste water treatment plant, so far, but waste water discharge is included as a chapter in the check-list issued to perform routine inspections in IPPC/IED installations. Items regarding waste water discharge make up the chapter
SPAIN (CASTILLA LA MANCHA)	Yes, we have a check-list for each type of plant. A part of this check-list is related to wastewater.

SPAIN (CANTABRIA)	When the inspection of the waste water is competence of the Community of Cantabria, we have a check list with all the conditions imposed in the EIA (atmosphere, noise, residues… included waste waters), it's adapted for each installation.
SPAIN (ANDALUCIA)	The check lists are made individually before each inspection and incorporates all the specific conditions established in the permit. There's not general checklist available, but we attach a couple of particular examples
NETHERLAND	Yes, there are different checklists and instruction manuals. The instruction manual for sampling waste water is attached (in Dutch).
ITALY	A general checklist for waste water discharge has been issued by the network of environmental agencies.
POLAND	Yes, in our system we have 3 checklist regarding waste water: 1. Municipal waste water treatment plants 2. Water and waste water management 3. Industrial plants (general) We can modify them according to our needs
IRELAND	No. Checklists are routinely used but not for the industrial water treatment plant. To date, in this area, the checklists have focussed on the quality criteria for the robustness of analytical data and associated quality control.
BELGIUM	No

QUESTION 7: INSPECTION

If a breach of the limit value is declared within the Self monitoring report (provided by the operator to the competent authority), can this data be used to give a penalty/fee etc ?

TURKEY	No. Two more analysis has to be done and the inspector has to be present during sampling. If the average value of three result (one from self monitoring) exceeds the limits, than the authority can issue a penalty

ROMANIA	We use the self monitoring reports as tools for checking the compliance with the permit conditions. In case we notice from such reports that the results of analytical measurements are not complying with the maximum allowed concentration for one ore more quality parameters set un in the permit than a an inspection (site visit) is undertaken in order to enforce the permit condition. Usually this means that the operator is punished by a penalty for breaching the permit conditions but also a permit suspension may be taken into consideration
CYPRUS	Yes
CZECH REPUBLIC	Yes, but often after submitting self-monitoring report (with declared breach of emission limit value) competent authority make action for verifying non-compliance (ask operator for more detail or make site inspection).
DENMARK	If there are exceedances of the terms of approval, this will be excluded by the state/ the municipality - and may end with a police report and a fine. The police conduct investigations and hands over the case to the public prosecutor if there has been a crime. The competent authority may also order a stop of the discharge of waste water. The competent authority itself can issue no fine. The fine is imposes by the court.
ESTONIA	Yes (fee)
SLOVAK REPUBLIC	Yes, but often after submitting self-monitoring report (with declared breach of emission limit value) competent authority make action for verifying non-compliance (ask operator for more detail or make site inspection).
SLOVENIA	Yes
FINLAND	Yes
PORTUGAL	Yes, usually only after one inspection on the plant where those results are observed

MALTA	When such a breach is reported, the Authority requests further corrective action to rectify that breach. Moreover, should the operations result in exceedance of the emission limit values indicated in the permit, the operator is required to designate a mixing zone as stipulated in the requirements of the Water Framework Directive or to apply for derogation from achieving the required emission levels. There is a mechanism in the permits which requires the operators to declare the non compliance upon identification. Thus the authority is not only notified upon the submission deadline of the quarterly or annual reporting episode.
SPAIN (NAVARRA)	Yes, but only if the self monitoring report comes from a UNE-EN 17025 laboratory
SPAIN (GALICIA)	Yes
SPAIN (CASTILLA LA MANCHA)	If there is a breach of the limit value in the sent report, a penalty procedure can be started.
SPAIN (CANTABRIA)	When the inspection of the waste water is competence of the Community of Cantabria, the Self monitoring report provided by the operator can be used to give a penalty/fee only if it is done by an accredited laboratory; although the usual procedure would be to check it with measurements made by the administration.
SPAIN (ANDALUCIA)	Yes, obviously the knowledge noncompliance with the limit values can be used to give a penalty or fee. If the breach is declared within the self monitoring report, the noncompliance evaluation must be determined under Decreto 109/2015 criteria. In any case, the common mechanism to issue a penalty is associated within the inspections performed by the authority. The self monitoring report is usually used for increase or relax the authority control of the activity.
NETHERLAND	It is possible to use this data when this is specifically addressed in the permit of the operator. The authorities want to use these data also in other situations, but that is not possible yet in the Netherlands. This is subject of discussion (with the industry).

ITALY	A breach of the limit values declared within the Self monitoring report (provided by the operator to the competent authority), does not constitute itself an automatic evidence of the violation without a technical check that should be performed by the inspection authority. Therefore, a non compliance declared in the report of the operator is not enough for a sanction but it has to be technically verified by the inspection authority.
POLAND	Yes, decision imposing administrative punishment
IRELAND	Yes. If a breach of an emission limit value is reported, a non-compliance is issued by the EPA. For repeat offences a prosecution could be taken but this would typically involve results of analysis for samples taken by the EPA in conjunction with results of the operators self monitoring. Non-compliances, along with other enforcement aspects, area assigned a weighting which contributes towards the calculation of licence compliance for preparation of the national priority site list used by the EPA. This is published on a 6 monthly basis (further details are available at the following link http://www.epa.ie/enforcement/nationalprioritysites/). The EPA have no powers to issue a monetary penalty.
BELGIUM	This data can be used to write an official report sent to the prosecutor who gives penal sanction and to the civil servant who gives administrative penalty.

QUESTION 8: ENFORCEMENT

Based on what measurements, in case of non-compliance, does the authority issue a penalty? Conducted by authority? By operator? Other?

TURKEY	If the sample taken during inspection does not comply with the standards, inspection authority applies sanction.
ROMANIA	As previous mentioned the measurement can be carried out by operator, third parties or competent authority. If any of these measurements unravel beaching of permit conditions regarding ELVs than a penalty may be issued by the inspection authority..
CYPRUS	Mainly when conducted by the authority but exceedances of ELV recorded in selfmonitoring reports may also lead to penalty procedures.

CZECH REPUBLIC	Conducted by accredit laboratory. In case that operator have own accredited laboratory is possible used operator measurement for issuing penalty
DENMARK	See question 7
ESTONIA	Measurement can be carried out by competent authority. In case of non compliance penalty may be issued by Inspection Authority.
SLOVAK REPUBLIC	Yes. Conducted by accredit laboratory. In case that operator have own accredited laboratory is possible used operator measurement for issuing penalty.
SLOVENIA	Inspection react on a base of a monitoring report prepared by an accredited laboratory.
FINLAND	In case of non-compliance the competent authority asks the police to conduct investigations, if the non-compliance is because of a crime. If the investigations show to a crime, the police hands over the case to the public prosecutor. If the case goes to the court, the competent authority is called to the court as a witness. The competent authority itself can issue no penalties.
PORTUGAL	The penalty is issued by the inspection authority only after one inspection on the plant, and it is based on evidences collected during the inspection namely the monitoring results performed by the operators.
MALTA	The Authority issues a penalty based on the type, gravity and duration of a non compliance with permit condition. This also depends on whether the operator rectifies such a non compliance within the timeframes agreed upon with the authority.
SPAIN (NAVARRA)	Accredited laboratories (UNE-EN 17.025) and inspection organisms (UNE-EN 17.020)
SPAIN (GALICIA)	Mainly when conducted by the authority but exceedances of ELV recorded in selfmonitoring reports may also lead to penalty procedures.
SPAIN (CASTILLA LA MANCHA)	Yes, a penalty procedure can be started by the authority that has issued the permit.
SPAIN (CANTABRIA)	It is the competent authority who issues a penalty in case of non-compliance.
SPAIN (ANDALUCIA)	The authority may issue a penalty in noncompliance cases based in measurements conducted mainly by the authority and, to a lesser extent, by the operator and third-part.

NETHERLAND	Mostly on measurements conducted by the authority. Sometimes based on a message and/or measurements of the operator (see answer 7). Violation of rules can also be prosecuted by the Public Prosecution Service (`Openbaar
	Ministerie´/OM). Its field of work is criminal law. Some civil servants of the competent authority are called special investigating officers (´buitengewoon opsporingsambtenaar´). They are managed directly by the Public Prosecution Service. The Public Prosecution Service and the courts together make up the judiciary. The Public Prosecution Service decides who has to appear before a court and on what charge.
ITALY	A penalty can be issued on the based on the results of the analysis performed by the competent authority; it can also be issued on the basis of a negative result of a technical assessment following a breach of the limits detected in the annual report of the operator.
POLAND	Conducted by operator in accredited laboratory (own or external)
IRELAND	As outlined in the answer to question 7, a prosecution (penalty) can be taken using the EPA results and those of the operator. However, there are occasions where the operator's results alone may be used alone for a prosecution. A non-compliance is issued as a minimum for exceedances of the emission limit value.
BELGIUM	Measurements conducted by authority or by operator.

QUESTION 9: ENFORCEMENT

What is the type of punishment for exceeding the permissible conditions? Fine / decision / other

TURKEY	Just giving fine or fine with stopping the facility.
ROMANIA	In this case a penalty is issued and also the suspension of the permit is asked until the operator complies with the ELVs. If the operator doesn't comply within 6 months then the cancelation of the permit is asked by the inspection authority. The suspension and cancelation of the permit is issued by the decision of permitting authority.

CYPRUS	Out of the court fines can be imposed by the DoE inspectors up to 4000 Euros for every offence. Additionally when offences are taken to court, monetary fines can be imposed or/and the operator can go to jail according with the provisions of the Law. For very serious offences which include cases in which human health and the environment are seriously threatened, the Chief Inspector can ask the court to prohibit operation.
CZECH REPUBLIC	Most often are imposed fine, but is possible impose remediate measures and in case of serious non-compliance is possible impose restriction operation or closing down part or whole installation.
DENMARK	See question 7
ESTONIA	Fine and administrative procedure and injunction
SLOVAK REPUBLIC	First, remedial measures are imposed and, in the event of a serious breach, non-compliance may impose a fine, limit operation or shut down operations.
SLOVENIA	Both a fine and a decision. A decision is a curative measure to solve the problem. An administrative fine in restrictive measure and do not solve a problem but it has an educational effect.
FINLAND	Depends on the severity of the crime and if done on purpose or on pure negligence, and on the impact in the environment from fine to jail.

PORTUGAL	Usually is a fine. The operator may be ordered by the inspection authority to cease the discharge when the measurements are exceeding the conditions on the permit or in other situations like when is making an unauthorized discharge.
MALTA	When exceeding permissible conditions, the authority may decide to take Administrative action, legal Action or withdrawal of bank guarantees
SPAIN (NAVARRA)	Usually fine Exceptionally partial or total closure

SPAIN (GALICIA)	Both fines and decisions. In our legal system administrative offences are classified in nonserious, serious and very serious offences. Penalties provided for on-serious and serious offences are in general fines and the obligation to restore the situation to its original state. For very serious offences, which include cases in which human health and the environment are seriously threatened, additionally a decision to prohibit operation can be the result.
SPAIN (CASTILLA LA MANCHA)	The sanction can be a fine or the withdrawal of the permit in the more important cases. It can also include criminal liability and in this case the competent authority is the Criminal Court.
SPAIN (CANTABRIA)	Fine and/or decision.
SPAIN (ANDALUCIA)	Usually the type of punishment for exceeding the permissible conditions is to impose a fine. Only in cases where there is an imminent threat of damage to the environment, authority may take decisions, like activity clausure, against the operator. In any case, that's regulated in wastewater and environmental quality laws.
NETHERLAND	Administrative sanctions are: Official warning Order of penalty payment in a cease and desist letter (`Last onder dwangsom´) Administrative enforcement Withdrawal permit
ITALY	According to the non compliance the penalty can be an administrative fine or follow a penal path. Furthermore, Competent Authority sets a deadline within which the operator has to comply again with the permit. The further step (whether the operator does not restore the compliance situation or in case of a second breach) is the closure of the plant and the withdrawal of the permit.
POLAND	Decision imposing administrative punishment (=Q7)
IRELAND	A notification of non-compliance will issue as standard in the event of an exceedance of the emission limit value. For repeat offences a prosecution will be considered in line with the EPA's enforcement policy. The result of a prosecution on conviction is a fine.

BELGIUM

When the environmental inspector makes a report to the authorities :

- The prosecutor has 30 or 60 days to say « I pursue the offender ».
- If he doesn't pursue the offender, the civil servant adjudicator has six months to impose penalties.

Every legislation sets out illegal behaviours and the level of the offence regarding to the behaviour. The range of penal sanctions and administrative penalties depends on the level of the offence.

The decree fixes 4 levels of non-compliance from 1 to 4, level 1 being the most serious noncompliance situation and the level 4 being the less serious non-compliance situation.
Punishment and fines

Level of non- compliance	Criminal penalties	Administrative sanctions
1	Imprisonment : 10 to 15 y Fines : 100.000 to 10.000.000 €	-
2	Imprisonment : 8 d to 3 y Fines : 100 to 1.000.000 €	Fines : 50 to 100.000 €
3	Imprisonment : 8 d to 6 m Fines : 100 to 100.000 €	Fines : 50 to 10.000 €
4	Imprisonment : - Fines : 1 to 1000 €	Fines : 50 to 1.000 €

Moreover, when an environmental inspector reports to the authorities, he can write a report to the mayor and ask, for example :

- The full or partial closing of a plant or an activity.
- Putting the seals on devices.
- To ask to the offender the temporary closing of an installation.
- To impose to the offender a rehabilitation plan.

	• Any kind of actions to stop a danger for the environment and human health.

QUESTION 10: ENFORCEMENT

Who imposes a penalty? (Licensing authority / inspection body / court / other)

TURKEY	Inspection body

ROMANIA	The penalty is imposed by the inspection authority (National Environmental Guard and inspection bodies of „Romanian Waters" National Administration). The operator may to submit a complaint against penalty report to the competent court within 30 days after the penalty report is issued or communicated. The court may decide to maintain the penalty, to reduce the level of penalty, to replace the penalty with a warning or even to cancel the penalty report.
CYPRUS	The Inspectors of the DoE can impose out of the court fines. Additionally when offences are driven to court, the court can imposes monetary fines or/and can send the operator to jail according with the provisions of the Law.
CZECH REPUBLIC	Inspection authority, and is possible impose fine by Permit authority
DENMARK	See question 7
ESTONIA	Inspection Authority. Criminal cases - court
SLOVAK REPUBLIC	Inspection authority. The court may change the decision to inspect the fine.
SLOVENIA	Inspector
FINLAND	Court
PORTUGAL	Inspection body or the water permitting authority.
MALTA	The inspection body and the licensing (permitting) body form part of the same authority. In cases referred for court action, the court imposes penalties as prescribed in the law.
SPAIN (NAVARRA)	Licensing authority (local or regional government); inspection body only proposes to start the penalty procedure Court only if there is exceptionally serious effects or a legal resource

SPAIN (GALICIA)	Depending of the classification of the offences (non-serious, serious and very serious), penalties are imposed by officials at different levels of the Regional Ministry of Environment and Spatial Planning. The penalties corresponding to very serious offences are imposed either by the Regional Ministry or by the Government. Inquiries leading to the penalties are carried out by lawyers (civil servants) of the Legal Services of the Regional Government The Permitting Service (IPPC Service) and the Inspection Service participate in the procedure providing all the information available: inspection minutes and reports, selfmonitoring reports etc
SPAIN (CASTILLA LA MANCHA)	The inspection body proposes the start of the civil sanctions and the procedure is analyzed by the Juridical Service. It could in some cases arrive to the Legal Authority.
SPAIN (CANTABRIA)	The penalty is imposed by the Authority with competence in the place where the waste water is discharged.
SPAIN (ANDALUCIA)	Usually the penalties are impose by the license authority, who is assisted by the inspection authority.
NETHERLAND	The inspection body is competent for administrative sanctions. Criminal prosecution is done by Public Prosecution Service.
ITALY	The inspection authority assesses the non compliances and report to the Competent Authority suggesting the measures to be taken; the last one imposes the penalty.
POLAND	Inspecting body
IRELAND	Prosecution in the courts is taken by the office of environmental enforcement unit of the EPA. The fines are decided by the court based on the evidence provided.
BELGIUM	Inspection body controls the execution of a penalty.

QUESTION 11: LAB ANALYSIS

Should sampling and lab analysis have to be performed by an accredited entity? In the case of sampling or analysis without accreditation, are measurements considered invalid?

TURKEY	Yes should be. The facility can do analyses by itself for its own check. In the case of sampling or analysis without accreditation, the measurements are considered invalid.
ROMANIA	At least once a year the operator has to perform the self-monitoring through an accredited laboratory. If this requirement is not fulfilled then a breaching of the permit condition is took into consideration.
CYPRUS	The accredited entity must be accredited for sample collection (which includes planning of sampling) and for analysing each of the parameters included in the discharge conditions. If both accreditations (accreditation for sampling and accreditation for analysing samples in laboratory) cannot be proofed, the measurements are not considered invalid but can be easily challenged in court procedures. In these cases, the results regarding the parameters for which the entity lacks accreditation are not considered invalid but again can be challenged in court procedures.
CZECH REPUBLIC	Sampling and lab analysis have to be perform by an accredited entity.
DENMARK	Usually sampling and analysis should be accredited but in special cases the company can do it themselves. The measurements are considered invalid.
ESTONIA	Sampling and lab analysis should be accredited.
SLOVAK REPUBLIC	Sampling and laboratory analysis have to be perform by an accredited entity.
SLOVENIA	Yes – accredited laboratory.
FINLAND	Sampling and lab analysis should be accredited.

PORTUGAL	Sampling can be done without accreditation, and the results are considered valid. The analysis procedure is determined by law and that procedure is accredited by a national accreditation organism. In case of divergence in wastewater analysis performed by the operator and the inspection the result obtained from the analysis carried out by the
	National environmental lab serve as proof.
MALTA	Lab analysis has to be usually carried out at a laboratory accredited to at least EN ISO 17025:2005/Corr 1:2006 and preferably for each and every test. In case analysis is to be carried out without accreditation, this would be subject to a specific approval by the Authority upon submission of further details on the proposed analytical methods and laboratory.
SPAIN (NAVARRA)	Yes, not accredited entities or laboratories are not considered as acceptable It depends of the case, but sampling by accredited entities are strongly preferred. In court would be unacceptable
SPAIN (GALICIA)	Definitely yes. The accredited entity must be accredited for sample collection (which includes planning of sampling) and for analysing each of the parameters included in the discharge conditions. The accreditation is issued by the Entidad Nacional de Acreditación (ENAC) which is the agency entitled by the government to operate in Spain as the only National Accreditation Body, pursuant to Regulation (EU) No 765/2008 that regulates the functioning of accreditation in Europe. If both accreditations (accreditation for sampling and accreditation for analysing samples in laboratory) cannot be proofed, the measurements are considered invalid. If may happen that the entity is accredited for analysing some parameters and not others. In these cases, the results regarding the parameters for which the entity lacks accreditation are considered invalid and the operator is requested to repeat the sampling and analysis for those parameters. Additionally all staff participating in the sampling and analysing must be internally qualified by the accredited entity. Qualification procedures are checked by ENAC.
SPAIN (CASTILLA LA MANCHA)	Yes, it can be done by an accredited entity.

SPAIN (CANTABRIA)	The sampling and lab analysis have to be performed by an accredited entity if not they are considered invalid.
SPAIN (ANDALUCIA)	The response is affirmative for both questions. Only if the sampling and lab analysis is performed by operator (self monitoring) can be out of accreditation.
NETHERLAND	Yes, the laboratory should have an accreditation.
ITALY	Sampling and lab analysis have to be performed, on behalf of the operator, by an accredited entity. In the case of sampling or analysis without accreditation, measurements are considered invalid.
POLAND	Yes, only accredited entity. In the case of sampling without accreditation or analysis without accreditation, measurements are considered invalid. For measurements performed in a non-accredited laboratory, inspecting body will impose administrative punishment by way of a decision.
IRELAND	Ideally yes. The EPA recommend that analysis is carried out by an accredited laboratory and that the individual analytical test methods are accredited. The EPA have provided guidance to operators in this regard to ensure that the results or analysis are robust. This area has been a focus of enforcement site visits where issues such as sample handling, test methods (CEN/ISO etc.) and quality control have been assessed. Further details of EPA guidance on this matter is available at the following link
	http://www.epa.ie/pubs/advice/water/aq/ . Where sampling or analysis are not accredited there are extra checks carried out during Agency visits to verify the robustness of results being reported.
BELGIUM	Self-monitoring measurements can be done: • By the operator in some cases like on line or daily measurements. • By accredited entity. It depends on the conditions of the permit. Sampling has to be performed by an accredited entity or by the inspection body. Inspection body has to respect a legal procedure set by a decree.

QUESTION 12: LAB ANALYSIS

Does the inspection authority perform sampling and analysis on its own?

TURKEY	In some special cases, the laboratory department and inspection department of Ministry can do inspection together. In this cases laboratory department takes samples, do the analysis and send to results to inspection department.
ROMANIA	The National Environmental Guard doesn't but the „Romanian Waters" National Administration does.
CYPRUS	The Inspection authority performs only sampling. The inspection authority (Department of Environment) is supported by the State General Laboratory, a public accredited laboratory. DoE takes samples during routine inspections under the controlling of the implementation of either the Waste Discharge Permits or Industrial Emissions Permits and carry them to SGL for analytical measurements.
CZECH REPUBLIC	Perform sampling yes (but can not use those measurement in administrative procedure), perform analysis no, have to ask accredited lab.
DENMARK	Usually not on waste water from industries.
ESTONIA	Yes (if there were not violation)
SLOVAK REPUBLIC	No, the inspection authority must require an accredited body to collect and analyze it.
SLOVENIA	No. But sometimes hire an accredited laboratory.
FINLAND	On surface water quality yes, not on waste water discharge.
PORTUGAL	Only sampling. Analysis are being done on accredited public labs.
MALTA	The Authority does not usually perform sampling and analysis on its own but it requires operators to conduct such measurements at their own expense as directed by the Authority. The authority is however empowered to take all the necessary samples and carry out sampling tests as it deems necessary
SPAIN (NAVARRA)	Yes, sampling is performed by public accredited organism (UNE-EN 17.020); samples are sent to accredited laboratory (UNE-EN 17.025)

SPAIN (GALICIA)	Yes, but supported by the Environmental Laboratory of Galicia (LMAG in its Spanish and Galician acronym) both for sample collection and analysis.
	Environmental Inspectors are qualified for water sample collection
SPAIN (CASTILLA LA MANCHA)	No, they are performed by authorized inspection entities.
SPAIN (CANTABRIA)	When the inspection of the waste water is competence of the Community of Cantabria, there are sources to perform sampling and analysis on its own.
SPAIN (ANDALUCIA)	Yes, the inspection authority has its own accredited entity for sampling and lab analysis.
NETHERLAND	The inspection authorities perfom sampling on their own. Most of the analysis is done by a central accredited laboratory. Some specific parameters are analysed by other, commercial, accredited laboratories.
ITALY	Yes. Regional environmental inspection agencies have their own laboratories.
POLAND	Yes, if authority believes that the measurements submitted by the subject are doubtful or if authority wants to verify the measurements of the operator but inspection authorities own measurements can not be the basis for the legal imposition of the penalty. They may be the reason for not recognizing the results of the operator and only considering measurements of operator not valid may impose a penalty.
IRELAND	Yes on an annual basis typically and in some cases in response to incidents.
BELGIUM	The inspection only performs sampling. Analyses are always performed by an accredited laboratory.

QUESTION 13: LAB ANALYSIS

Which compliance criteria is adopted to the measure and its uncertainty in relation to the limit?

TURKEY	Discharged wastewater quality limits are defined in Bylaw for each industrial sector. A communique defines also sampling procedure and analyzing methods
ROMANIA	Don’t know.

CYPRUS	Uncertainty is taken into account to decide whether the limit is exceeded or not.
CZECH REPUBLIC	The results of accredited lab is accepted and compared with emission limit
DENMARK	That is set in the permit. The state has some guidelines.
ESTONIA	It is set in the permit
SLOVAK REPUBLIC	The results of accredited laboratory are accepted and compared with emission limit.
SLOVENIA	---
FINLAND	That is set in the permit.
PORTUGAL	The compliance criteria are stablished in the permit. The uncertainty is taken in account to check on the compliance during inspection.
MALTA	The Authority currently obliges operators to abide by the monitoring specifications and minimum performance criteria delineated in 2009/90/EC.
SPAIN (NAVARRA)	Value + uncertainity must be lower than limit
SPAIN (GALICIA)	Uncertainty must be taken into account to decide whether the limit is exceeded or not.
SPAIN (CASTILLA LA MANCHA)	The used criteria is the uncertainty of the measurement device.
SPAIN (CANTABRIA)	When the inspection of the waste water is competence of the Community of Cantabria, the measurement uncertainty is considered to check the compliance with the limit
SPAIN (ANDALUCIA)	If the lab value is IN the uncertainly interval, it's consider non evaluable; if it's UNDER the uncertainly interval, it's consider compliance with the limit value; and if it's ABOVE the uncertainly interval, it's consider non-compliance with the limit value.
NETHERLAND	In the Netherlands there are two kinds of emission limit values: theoretical and empirical (based on a dataset) with different uncertainty in relation to the limit. Rounding of figures is also taken into account.

ITALY	A national guideline has been issued (http://www.isprambiente.gov.it/it/pubblicazioni/pubblicazioni-del-sistemaagenziale/l2019analisi-di-conformita-con-i-valori-limite-di) to manage with uncertainties in the comparison with threshold limits.
POLAND	Uncertainty of measurement is an expanded uncertainty calculated using an expansion factor of k = 2, which corresponds to a confidence level of approximately 95%.
IRELAND	It is a bit unclear as to what the question is asking here. The laboratory analysis is generally carried out to ISO17025 standard. The uncertainty is established from validation of the test method. The testing laboratory is subject to audits from an external agency such as INAB (Irish national accreditation board). Reports of analysis results must comply with the requirements of ISO17025 and provide a value for uncertainty.
BELGIUM	For the moment, no criteria are adopted.