

## Factsheet 2.13 – BAT assessment and setting conditions

BAT Conclusions (BATc) have a key role in the permitting process as they must be the reference for setting permit conditions. In basic terms the BATc will describe the issues to be considered and the expected performance levels of an installation. It is then for the operator to demonstrate and ensure that the installation can meet these performance levels.

Despite this, it is important to note that the BATc include a statement declaring that they are not prescriptive regarding the particular techniques that should be used, and that other techniques can also be used. This means that they are not exhaustive in describing techniques but rather provide the focus on the areas to pay attention to and performance expectations to reference when determining a permit application or reviewing a permit – and not the means of achieving those outcomes.

BAT is the Best Available Techniques and is defined as the most effective and advanced stage in the development of activities and their methods of operation that indicates the practical suitability of particular techniques for providing the basis for emission limit values and other permit conditions designed to prevent, and where that is not practicable, reduce emissions and the impact on the environment as a whole.

There is a misconception that BAT is all about having the right types of technologies, kit and abatement plant at an installation. This is not the case. BAT is all 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 is BAT for that installation.

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 merited 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 normal optimised performance of the installation.

This means that as part of our BAT assessment we must assess and ensure that site specific performance is optimised and can achieve the performance levels within the range of the BAT-AELs. If we conclude as part of our assessment that site-specific performance is optimised, then BAT for that installation will be reflected by the emission levels associated with this optimised performance.

While the BATc do not specify that a particular technology or technique is utilised by an installation, it lists various technologies and techniques that may be applicable. This is not an exhaustive list and just because a technique has not been identified by the BATc this does not mean that it is not BAT.

Where a technology or technique has been listed in the BATc, BAT associated emission levels or BAT associated performance levels may also be included. These will present what is considered to be the normal operating range for BAT techniques or technologies and should be the reference for setting the permit conditions. These are also a useful reference for determining whether the performance of a particular installation is optimised and should form the basis of any discussions with the operator. It should be noted that the BATc may prohibit the use of certain technologies or techniques, however this will be unusual.

Just because a technique or technology is not mentioned in the BATc it does not mean that it is not BAT. Permit conditions can be set on the basis of techniques that are not described in any of the relevant BATc – however we must be satisfied that the proposed approach represents BAT.

Where an alternative technique is proposed, you should utilise Annex III of the IED which contains criteria for determining Best Available Techniques. You should consider these criteria and assess whether the proposed alternative technique satisfies these criteria, based on sufficient justification from the operator and can be considered to be BAT.

These criteria include:

1. the use of low-waste technology;
2. the use of less hazardous substances;
3. the furthering of recovery and recycling of substances and used in the process and of waste, where appropriate;
4. comparable processes, facilities or methods of operation which have been tried with success on an industrial scale;
5. technological advances and changes in scientific knowledge and understanding;
6. the nature, effects and volume of the emissions concerned;
7. the commissioning dates for new or existing installations;
8. the length of time needed to introduce the best available technique;
9. the consumption and nature of raw materials (including water) used in the process and energy efficiency;
10. the need to prevent or reduce to minimum the overall impact of the emissions on the environment and the risks to it;
11. the need to prevent accidents and to minimise the consequences for the environment; and
12. information published by public international organisations.

If we consider that an alternative technique satisfies these criteria, and is BAT, you must also set emission limit values that ensure that under normal operating conditions the emissions do not exceed the BAT-AELs which are described in the BATc.

Where it is assessed that an installation is not currently BAT, the operator must undertake an assessment of the options to minimise the emissions and specify the steps that will be taken

to employ BAT at the installation by the end of the BATC review period. This process is called optioneering.

### Considering a Range of Options

It is likely that in most cases that the options for achieving BAT can be addressed in a number of ways – BAT will vary on a site by site basis. A basic principle of BAT assessment is to consider a range of options to address BAT and to carry out an options appraisal – optioneering. Without considering a range of options it is not possible to determine if the chosen approach represents the most suitable option, and therefore represents BAT.

Optioneering should always include at least one option for reducing the emissions to within the BAT-AEL range within the BATc review deadline (where this is technically feasible). Where appropriate the operator may also need to consider options that would allow the installation to achieve the BAT-AELs after the BATc review deadline – these options should be assessed on the basis of other options resulting in disproportionate costs of dis-benefits to the environment. Under these circumstances the “do nothing – status quo” option may also be considered as an appropriate alternative approach.

Crucially any options that are being considered must be considered to represent the Best Available Techniques (BAT).

### Optioneering, Costs and Benefits

The consideration of costs and benefits of credible options is an important aspect of optioneering. The operator should ensure that an analysis of costs and benefits is made available for the range of credible options considered. It is acknowledged that there may be challenges in producing accurate costs and, more particularly monetising net benefits. As a consequence it may not always be possible to conduct an assessment that relies fully on a quantitative analysis.

Where a cost benefit analysis is required to justify derogation, the operator should provide a CBA for both the selected upgrade option **and** for the option that would allow the installation to achieve emissions within the BAT-AEL ranges within the BATc review deadline. This is required in order to demonstrate disproportionate costs. See further factsheet 9.

### Justification for Preferred Option

The operator will have a preferred option and should indicate the reason(s) the proposed option has been selected.

As part of this justification the operator should state the reason that an option is being selected and where necessary give details of any benefits and risks associated with the option, and why they are preferred over other options, including why other possible options are not selected and are therefore not the best options for the site specific circumstances.

The operator should as part of its justification provide evidence to support understanding of underlying cause as to why a particular option has been selected. This could take the form of technical assessments, monitoring data, photographs, historic maps or survey data.

The operator should demonstrate that the proposed upgrades will provide the intended benefits e.g. these benefits may include the protection of important infrastructure and buildings, valuable land resource, or renewable energy production – but most importantly why the preferred option is BAT and will achieve emissions within the BAT-AEL range.

Derogation (and deviation from the BAT-AELs) can only be considered after the site specific BAT assessment has been concluded, and if the BAT assessment and optioneering does not demonstrate any BAT option that will achieve emissions within the BAT-AEL range.

The need to consider derogation will arise only if it is concluded that an operator's BAT Assessment adequately demonstrates that BAT in those operators specific circumstances might be defined by an ELV that exceeds the upper end of the applicable BAT-AEL range. This can be either on an ongoing basis, or on a time limited basis in order to allow the investment necessary to eventually reduce emissions to an appropriate point within the BAT-AEL range.

It is a common misconception that derogation is from both BAT, the BAT Conclusions and the full requirements of the IED – this is not the case.

### **Types of Derogation**

The IED specifies only 2 types of derogation.

- Article 15(4) derogation - allows the setting of less strict ELVs that exceed the BAT-AEL range. This derogation can be granted only if on-site operations are considered to be BAT (an article 15(4) derogation is not derogation from BAT). Furthermore this should ordinarily not be considered to be an indefinite derogation from the BAT-AELs, but rather a temporary relaxation of the ELVs.

The operator must justify any derogation with firm plans to bring operations to within the BAT-AEL range (within an appropriate timescale) and cease the requirement for derogation. This type of derogation would need to be reappraised again at any future BATc review, and the status of BAT at these future reviews is uncertain. As a consequence the operator may ultimately be faced with greater upgrade requirements in the future.

- Article 15(5) derogation – allows for the testing and use of emerging techniques. This derogation can be granted if site operations are not BAT – however this derogation can only be granted for a period of 9 months. It is considered unlikely that this type of derogation will be appropriate for BATc reviews.

### **Circumstances in which Derogation may be Justified**

If BAT may be represented by an ELV that exceeds a BAT-AEL range in the case of a specific installation, competent authorities it can set an ELV that exceeds the upper end of the BAT-AEL range. Competent authorities can only set such an ELV if it can be demonstrated that reducing the comparable emissions to within the BAT-AEL range would lead to 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.

The reasons that could justify derogation to be considered on the grounds of the geographical location or the local environmental conditions might include:

- higher construction and/or energy costs due to remote location;
- the installation uses a locally available raw material that affects the emissions, and importing the raw material upon which compliance with BAT-AEL depends would require substantial infrastructure investment and increased transport costs;
- the uses of alternative techniques at the installation would require additional infrastructure locally (e.g. remote locations without interconnector for power supply);
- the built up nature of the local area may result in higher costs (e.g. because of higher land prices);
- local planning restrictions limit the nature of developments or their costs; or
- the installation is located where there are fewer people or environmental receptors, resulting in lower impacts (and damage costs) than would apply to a typical installation.

The reasons that might justify derogation to be considered on the grounds of the technical characteristics of the installation might include:

- atypical cross media impacts would arise whereby reducing the emissions of one pollutant increase the emissions of another;
- the configuration of the plant within the site results in practical difficulties and increased costs, including lack of space for the construction of additional plant;
- the history of recent investment in techniques designed to reduce emissions;
- the remaining operational life of the plant;
- the product must be produced to meet a specific and atypical specification that necessitates e.g. additional purification steps, different reaction chemistry etc.; or
- the characteristics of the gaseous or liquid effluents are atypical.

In order for competent authorities to entertain the possibility of derogation the optioneering BAT assessment should include at least one option for reducing the emissions to within the BAT-AEL range and meet BAT within the BATc review deadline. This assessment will need to demonstrate that the reason such an option was rejected as BAT, or whose introduction is delayed, can be linked to at least one of the relevant qualification criteria mentioned above. If this is not the case then competent authorities cannot consider the possibility of derogation and would therefore have no option but to set the ELV within the BAT-AEL range.

## Translating BAT Associated Emission Levels (AELs) into Emission Limit Values (ELVs)

*This part provides guidance on how to translate the BAT Associated Emission Levels (AELs) published at EU-level into Emission Limit Values (ELVs) that are specific to the permitting of individual installations.*

*The IED requires that Emission Limit Values (ELVs) are set for polluting substances likely to be emitted in significant quantities (Article 14, para 1). The ELVs must reflect the principle that that Best Available Techniques (BAT) is applied in the operation of the installation (Article 11). The BAT conclusions agreed at EU-level provide the reference for setting ELVs, including the requirements for the monitoring of emissions (Article 14, para 3). In particular, the BAT-AELs provide the basis for setting the ELVs for individual installations (Article 15, para 3).*

### Article 3

#### Definitions

(5) 'emission limit value' means the mass, expressed in terms of certain specific parameters, concentration and/or level of an emission, which may not be exceeded during one or more periods of time;

(10) 'best available techniques' means the most effective and advanced stage in the development of activities and their methods of operation which indicates the practical suitability of particular techniques for providing the basis for emission limit values and other permit conditions designed to prevent and, where that is not practicable, to reduce emissions and the impact on the environment as a whole [...]

### Article 11

#### General principles governing the basic obligations of the operator

Member States shall take the necessary measures to provide that installations are operated in accordance with the following principles:

[...]

(b) the best available techniques are applied;

### Article 15

#### Emission limit values, equivalent parameters and technical measures

[...]

3. The competent authority shall set emission limit values that ensure that, under normal operating conditions, emissions do not exceed the emission levels associated with the best available techniques as laid down in the decisions on BAT conclusions referred to in Article 13(5) through either of the following:

(a) setting emission limit values that do not exceed the emission levels associated with the best available techniques. Those emission limit values shall be expressed for the same or shorter periods of time and under the same reference conditions as those emission levels associated with the best available techniques; or

(b) setting different emission limit values than those referred to under point (a) in terms of values, periods of time and reference conditions.

Where point (b) is applied, the competent authority shall, at least annually, assess the results of emission monitoring in order to ensure that emissions under normal operating conditions have not exceeded the emission levels associated with the best available techniques.

To put the IED requirements into practice it is necessary to derive a mass or concentration limit (single value) from the BAT-AEL range (level A to level X). This single value should not exceed the range under normal operating conditions. In order to comply with the basic obligation to apply BAT, this mass or concentration limit needs to reflect the best technically and economically viable option to protect the environment.

If the ELV is expressed for another time period or under reference conditions other than those stated in the BAT-AELs, an additional calculation by the operator is required to prove that the level of protection is equivalent.

The implementation of BAT-AELs can be split into three steps:

- Translating BAT-AELs into a single ELV (from a range to a number) or several ELVs for different operational conditions.
- Setting monitoring requirements, and in case of other reference conditions, setting additional monitoring/reporting requirements.
- Setting compliance rules, like reference periods and conditions and allowed exceedances during other than normal operating conditions.

Under certain limited conditions, Article 15, para 4, allows an ELV to exceed the upper value of a BAT-AEL range. See factsheet2.11 for further information on derogations

### **Conditions in permits, general binding rules, national/regional Brefs**

The IED provides the options to implement BAT-AELs in individual permit conditions or in general binding rules. In the permitting option, BAT-AELs are translated into ELVs for an individual installation. In the general binding rules option, BAT-AELs are translated into ELVs for a sector. Examples from Member States show that general binding rules are prepared by working groups with experts from competent authorities and the member state. Operators and trade associations are consulted.

*Article 6***General binding rules**

Without prejudice to the obligation to hold a permit, Member States may include requirements for certain categories of installations, combustion plants, waste incineration plants or waste co-incineration plants in general binding rules.

Where general binding rules are adopted, the permit may simply include a reference to such rules.

*Article 17***General binding rules for activities listed in Annex I**

1. When adopting general binding rules, Member States shall ensure an integrated approach and a high level of environmental protection equivalent to that achievable with individual permit conditions.

2. General binding rules shall be based on the best available techniques, without prescribing the use of any technique or specific technology in order to ensure compliance with Articles 14 and 15.

3. Member States shall ensure that general binding rules are updated to take into account developments in best available techniques and in order to ensure compliance with Article 21.

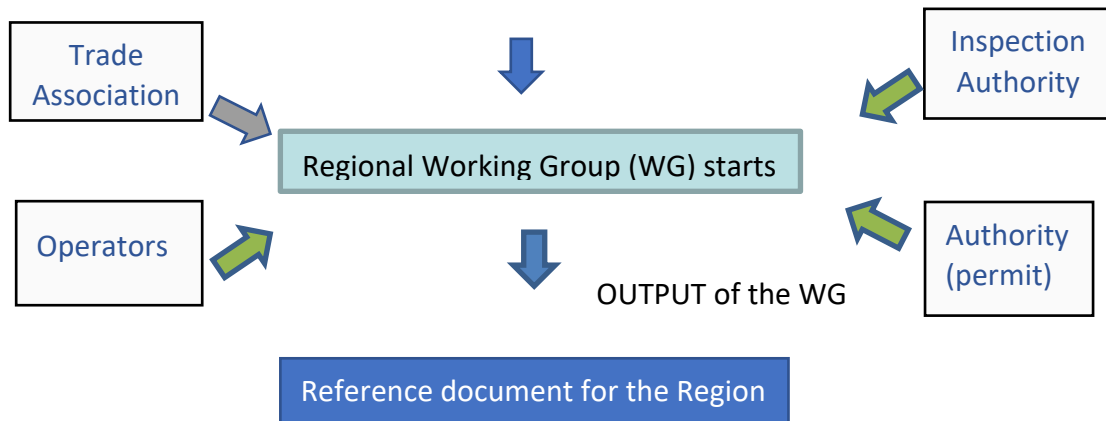
4. General binding rules adopted in accordance with paragraphs 1 to 3 shall contain a reference to this Directive or be accompanied by such a reference on the occasion of their official publication.

Examples in Member States show two approaches, combining permits and general binding rules:

The general binding rules set ELVs that are considered to reflect best available techniques for the majority of the installations. In the permits of individual installation these ELVs are checked and if deemed necessary amended in permit conditions. The ELVs in the general binding rules are sometimes at the upper level of the BAT-AEL and sometimes at a more stringent level depending on the performance of the installations and environmental circumstances in the area covered by the general binding rules.

An option in between (not mentioned in the IED) are national/regional Brefs which provide guidance to set ELVs for a specific sector or region. Like general binding rules national/regional Brefs are developed by working groups consisting of experts from competent authorities and the member state and in co-operation / consultation with industry.





### Step 1: Translating BAT-AELs into an ELV

To set ELVs based on BAT-AELs the emission performance of a whole sector needs to be compared with the performance level of an individual installation or, in the case of general binding rules, of the group of installations covered under the scope of the general binding rules. For this analysis, detailed and good quality information is needed. The IED provides the legal basis to require the operator to submit the necessary information:

- Permit application (Article 12)
- Monitoring plan and data (Article 14)
- Possibility to require operator information for reconsidering permit conditions (Article 21)
- Inspection reports (Article 23).

To carry out the analysis, the information needs to include in particular:

- Technical details on the installation (existing/new, continuous / non-continuous operations).
- Substances emitted, including information on quantities of individual and categories of substances and monitoring methods and reference conditions.
- Nature of the emissions, like fluctuations, point / diffuse source, normal / other than normal operating conditions.
- Emission reduction techniques (to be) implemented.

Practical examples in Member States show that requiring the operator to draw up a plan, including on implementing BAT and monitoring and in some cases following formats or criteria, contributes to good quality and quantity information collection.

If a first check, also in comparison with the BREF, shows that the quality and/or quantity of information is not sufficient, the competent authority may, **before** granting or revising the permit, request additional information. A better understanding of the specific situation may also require additional information. For example, the reference conditions and monitoring

methods that underlie the emission data must be clear to be able to use them for setting an ELV

*Article 12*

**Applications for permits**

1. Member States shall take the necessary measures to ensure that an application for a permit includes a description of the following:

the installation and its activities;

the raw and auxiliary materials, other substances and the energy used in or generated by the installation;

the sources of emissions from the installation;

the conditions of the site of the installation;

where applicable, a baseline report in accordance with Article 22(2);

the nature and quantities of foreseeable emissions from the installation into each medium as well as identification of significant effects of the emissions on the environment;

the proposed technology and other techniques for preventing or, where this is not possible, reducing emissions from the installation;

measures for the prevention, preparation for re-use, recycling and recovery of waste generated by the installation;

further measures planned to comply with the general principles of the basic obligations of the operator as provided for in Article 11;

measures planned to monitor emissions into the environment;

the main alternatives to the proposed technology, techniques and measures studied by the applicant in outline.

An application for a permit shall also include a non-technical summary of the details referred to in the first subparagraph.

*Article 21*

**Reconsideration and updating of permit conditions by the competent authority**

2. At the request of the competent authority, the operator shall submit all the information necessary for the purpose of reconsidering the permit conditions, including, in particular, results of emission monitoring and other data, that enables a comparison of the operation of the installation with the best available techniques described in the applicable BAT conclusions and with the emission levels associated with the best available techniques.

When comparing the information with a BREF/BAT-AEL five outcomes can be distinguished:

The installation uses the same techniques as described in the BAT conclusion. In this case the next step is to check if the emission level of the installation is within the BAT-AEL. If so, that emission level can be set as an ELV.

The installation uses the techniques described in the BAT conclusions, but emission levels exceed the BAT-AEL. The emission level in the operator information cannot be automatically set as the ELV (article 15). The competent authority could consider to deviate from the application and set the ELV at the upper level of the BAT-AEL or a lower level considered appropriate looking at the technical characteristics of the installation or comparable installations in the BREFs or elsewhere. This requires consultation with the operator to prevent objections and to guarantee enforceability.

The installation uses techniques other than those described in the BAT-conclusion. In this case the emission level must be compared to the BAT-AEL and additionally the technique must be tested against the Annex III criteria to determine BAT (article 14, para 5). This second test can identify cross-media effects possibly leading to interference with other BAT conclusions. If this is not the case and the emission level is within the BAT-AEL, that emission level can be set as an ELV.

The installation uses techniques other than those described in the BAT-conclusion and emission levels exceed the BAT-AEL. The emission level in the operator information cannot be automatically set as the ELV (article 15). The competent authority could consider deviating from the application and set the ELV at the upper level of the BAT-AEL or a lower level considered appropriate looking at the technical characteristics of the installation or comparable installations in the BREFs or elsewhere. Alternatively, the competent authority may refuse to grant the permit or require the operator to send in a justified application for an article 15(4) derogation. This must be distinguished from processes and environmental effects not covered by BAT conclusions. In that situation, competent authorities and operators must derive an ELV using the criteria of Annex III IED (article 14, para 6, IED).

The operator applies for an article 15, para 4, derogation to use a less stringent ELV than the BAT-AEL. See factsheet 2.11. See factsheet 2.11.

In all situations, the quality of the permit application needs to be checked thoroughly:

Does the emission level reflect the best available techniques looking at the installation and its activities, the materials and energy and the conditions of the site?

Are the proposed emissions reduction techniques acceptable in terms of appropriate design, operation and maintenance and optimal capacity and availability?

The BREF chapters on techniques to consider in the determination of BAT and on emerging techniques provide useful information for this check. Other sources may also be used, for example:

Comparable installations elsewhere in or outside Europe

The operator, competent authority or both can investigate the feasibility of applying other or additional techniques that potentially can reduce the emissions.

In particular, in the case of general binding rules, information from technology institutes, universities and industry representatives (both the IED sectors and material suppliers/suppliers of emission reduction technology).

*In summary, the ELV is normally set with respect to the actual emissions from the installation under normal operating conditions. This level is a single value, not a range for each operating window/scenario/product. It is within the range of the BAT-AEL and not necessarily at the upper level of the range. The collection and analyses of information by the operator, competent authority and/or legislator (in the case of general binding rules) is aimed at setting the ELV at a realistic, practicable and enforceable level.*

All activities of the competent authority to define the ELV must be clearly reported, by means of a technical report or included in the permit itself. This justification is part of the requirement to make information available to the public and to enable public participation (article 24, para 2).

#### Article 24

##### **Access to information and public participation in the permit procedure**

2. When a decision on granting, reconsideration or updating of a permit has been taken, the competent authority shall make available to the public, including via the Internet in relation to points (a), (b) and (f), the following information:

the content of the decision, including a copy of the permit and any subsequent updates;

the reasons on which the decision is based;

the results of the consultations held before the decision was taken and an explanation of how they were taken into account in that decision;

the title of the BAT reference documents relevant to the installation or activity concerned;

how the permit conditions referred to in Article 14, including the emission limit values, have been determined in relation to the best available techniques and emission levels associated with the best available techniques;

where a derogation is granted in accordance with Article 15(4), the specific reasons for that derogation based on the criteria laid down in that paragraph and the conditions imposed.

## **Step 2 Setting monitoring requirements**

*The IED requires operators to make and submit a monitoring plan as part of the permit application (article 12, para 1j). The competent authorities are required to set conditions on monitoring that enable verification of compliance with the permit. The conditions should cover methodology, frequency, evaluation, data processing, recording and presentation. BAT conclusions on monitoring provide the reference for setting the monitoring conditions.*

*Article 14***Permit conditions**

1. 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 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 16***Monitoring requirements**

1. The monitoring requirements referred to in Article 14(1)(c) shall, where applicable, be based on the conclusions on monitoring as described in the BAT conclusions.

[...]

The monitoring plan should be checked and, where necessary, modified by the competent authority **before** granting the permit in order to improve the reliability of the plan.

Frequently used criteria to check monitoring plans are:

- Conformity with BAT conclusions on monitoring.
- *Conformity with the goals of the monitoring, which should meet the goal of the BAT conclusion and verify compliance.*
- Consistency of the complete monitoring system, not only the monitoring of separate parameters.
- Inclusion of obligations regarding Monitoring Data Quality Assurance (e.g. UNI EN 14181 for CEMS, laboratory/operators qualification, sampling methods and procedures ...).
- Application of CEN standards or, if CEN standards are not available, ISO, national or other international standards which ensure the provision of data of an equivalent quality level.
- Check if acknowledged (legal) persons do the monitoring or at least the testing of the monitoring system.

Check if the monitoring plan is sufficiently risk-based: The frequency increases with the impact of a failure of abatement techniques. Another approach is to take into consideration the sensitivity of the receptor in question to determine which method to choose based on its limit of quantification and error.

Monitoring plans can also be compared with *existing monitoring programs in similar installations to check the quality.*

General binding rules often include monitoring requirements. In addition to these general binding rules, *details (such as parameters, reference conditions, intervals, reporting requirements and monitoring methods) might be specified in the permit*. After the publication of BAT conclusions for a sector, a comparison is made between the monitoring requirements in general binding rules and the monitoring requirements in the BAT conclusions. Based on this comparison, a proposition is made for implementing additional monitoring requirements in the general binding rules.

Sometimes BAT conclusions allow alternative methodologies and sometimes operators would prefer to use other monitoring methods or frequencies:

Often the least stringent monitoring method and frequency is taken where the BAT conclusions allow alternatives. When existing permits and general binding rules are already more stringent, the existing conditions are reaffirmed.

In case of BAT conclusions which provide alternative methods of monitoring, all methods are usually allowed.

If the operator proposes an alternative method to the one specified in the permit (and/or in the monitoring plan) he must prove, with the application of international procedures, the equivalence of the alternative method (in terms of LOQ, LOD, ...).

For the specific situation of another period and/or other reference conditions than in the BAT conclusions (article 15, para 3) in advance it is checked if the method allows recalculation to the same circumstances (reference conditions) of the BAT conclusion.

The competent/control authority can also change monitoring methods and/or frequency **after** the permit issue, depending on the specific situations, the monitoring results, the results of inspections, the number and type of non-compliances, and any incidents/ accidents that have occurred.

Individual Competent Authorities/Member States have developed guidance for specific sectors on the interpretation of the BAT conclusions on monitoring.

*In summary, a good quality monitoring plan and a thorough check of the monitoring plan in advance of granting the permit can, to a great extent, ensure that compliance with the permit conditions can be verified reliably.*

### **Step 3 Setting compliance rules**

The IED requires, on the one hand, that ELVs should be set for normal operating conditions (Article 15, para 3) and, on the other, that measures should be included for other than normal operating conditions (Article 14, para 1f). For this, again, good quality and detailed information is needed, for example:

*Installation specific*

Permit application (Article 12)

Monitoring plan and data (Article 14)

Notifications on incidents, accidents and non-compliance (Articles 7, 8).

*Sector information*

Background information on the BAT-AELs in the BREFs

CEN standards or other technical standards for maintenance, good operation, etc.

Comparable installations elsewhere in or outside Europe

*Article 14*

**Permit conditions**

1. 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:

[...]

(f) measures relating to conditions other than normal operating conditions such as start-up and shut-down operations, leaks, malfunctions, momentary stoppages and definitive cessation of operations;

*Article 7*

**Incidents and accidents**

[...]

(a) the operator informs the competent authority immediately;

(b) the operator immediately takes the measures to limit the environmental consequences and to prevent further possible incidents or accidents;

(c) the competent authority requires the operator to take any appropriate complementary measures that the competent authority considers necessary to limit the environmental consequences and to prevent further possible incidents or accidents.

*Article 8*

**Non-compliance**

[...]

2. In the event of a breach of the permit conditions, Member States shall ensure that:

(a) the operator immediately informs the competent authority;

(b) the operator immediately takes the measures necessary to ensure that compliance is restored within the shortest possible time;

(c) the competent authority requires the operator to take any appropriate complementary measures that the competent authority considers necessary to restore compliance.

[...]

In particular, the following information is needed:

Reference period: the time period to which the ELV refers, e.g. half hour or daily average, average over half hour sampling period, (non-)continuous process.

Reference conditions: the ELV must include reference conditions to be used for the compliance check (e.g. pressure, temperature, oxygen concentration, humidity ...).

In principle, emission limit values are expressed for the same or shorter period of time and under the same reference conditions as the BAT-AEL. If not, additional monitoring is required to prove yearly that the level of protection is equivalent.

Monitoring methods: for each ELV/emission point, including QA procedure (e.g. UNI EN 14181 for CEMS);

Other than normal operating conditions such as start-up and shut-down of operations, leaks, malfunctions, temporary stoppages and definitive cessation of operations in order to determine:

if emissions from non-routine operations are relevant and different from routine operations, and

if so (examples from Member States show that this is not always the case), to set higher ELVs for defined parameters and non-routine operations including limits on frequency and duration for other than normal operating conditions in order to make clear when the ELV based on the BAT-AEL applies and when it doesn't apply.

Not all other than normal operating conditions can be anticipated. That is why the IED includes the obligation to inform the competent authority in case of incidents and (possible) non-compliance (article 8 and 9). Based on these notifications the permit conditions may be reviewed to ensure more effective regulation. During one "emergency situation", usually during a short period after one exceptional event, the operator may exceed the ELV and the compliance rules but should take immediate measures to rectify the situation and identify its causes so that future incidents can be prevented. The operator also has to communicate what happened and the actions that are being implemented to the permitting and inspections authorities e.g. on a 24h limit.

Examples from Member States show that general binding rules often do not include rules on other than normal operating conditions. The permits for individual installations cover these conditions.

*In summary, the challenge in setting compliance rules is to check if other than normal operating conditions leading to higher emission levels are expected and, if so, to distinguish these clearly from normal operating conditions to which the BAT-AELs apply.*