Workshop on Implementation of BAT Conclusions for Waste Incineration

Puzzle piece 1: NOC/OTNOC issue

Hubert de Chefdebiern
The NOC-OTNOC-EOT issue

• IED requests compliance with ELVs in NOC on one hand and within the R-EOT on the other one
• Definitions of NOC-OTNOC-EOT
• Missing information
• General proposals for implementation and compliance
<table>
<thead>
<tr>
<th>IED, chapters I et II</th>
<th>IED, Annex VI</th>
</tr>
</thead>
</table>
| **General rule** *(for all sectors covered by IED)*  
- Article 3(13) : **BATAEL**s defined in **NOC**  
- Article 15.3 : set **ELVs** ensuring that:  
  *Emissions do not exceed BATAELs in **NOC*** | **Specific rule for incineration**  
for substances **continuously monitored**  
- Annex VI, Part 8 1.2 : ELV to comply with within the **R-EOT** *(except when burner is in operation and no waste is combusted)* |
| **Consequences** | |
| EIPPCB required the operators to **report the OTNOC** situations on **17,520 Excel rows** *(½-hr values over 1 year)* for each continuously monitored substance,  
- This was done by hand since the information was not available *(because useless up to now)* | **2 sets of ELVs necessary for continuous measurements:**  
- BATAEL-based ELVs for **NOC** situations  
- IED Annex VI ELVs for **R-EOT (NOC & some OTNOC)** situations |
| EIPPCB filtered out the values in **OTNOC**  
1) Reported by the operators  
2) Supposed by them *(using miscellaneous filters)* | **Risk that certain authorities require BATAELs-based ELVs also in OTNOC (R-EOT).** |

- **R-EOT**: Relevant-Effective Operating Time  
- **NOC**: Normal Operation Conditions  
- **OTNOC**: Other Than Normal Operation Conditions  
- **ELV**: Emission Limit Value
### Regulatory requirements on compliance either in NOC or within the R-EOT for the different air ELVs

<table>
<thead>
<tr>
<th>Monitoring regime</th>
<th>Period</th>
<th>Substances</th>
<th>BATAEL-based ELVs</th>
<th>IED Annex VI ELVs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Continuous</strong></td>
<td>Daily average</td>
<td>Dust, HCl, HF, SO₂, NOₓ, TOC, CO</td>
<td>In NOC</td>
<td>In R-EOT (NOC &amp; OTNOC when waste burning)</td>
</tr>
<tr>
<td></td>
<td>Daily average</td>
<td>Hg*, NH₃</td>
<td>In NOC</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>½-hr average</td>
<td>Dust, HCl, HF*, SO₂, NOₓ, TOC, CO**</td>
<td>-</td>
<td>In R-EOT (NOC &amp; OTNOC when waste burning)</td>
</tr>
<tr>
<td></td>
<td>10-min average</td>
<td>CO**</td>
<td>-</td>
<td>In R-EOT (NOC &amp; OTNOC when waste burning)</td>
</tr>
<tr>
<td><strong>Long term sampling</strong></td>
<td>2-4 weeks, 1 month</td>
<td>PCDD/F + PCB-DL*</td>
<td>In NOC</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PCDD/F*</td>
<td>In NOC</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hg*</td>
<td>In NOC</td>
<td>-</td>
</tr>
<tr>
<td><strong>Periodic</strong></td>
<td>Every 6 months</td>
<td>Heavy metals, PCDD/F</td>
<td>In NOC</td>
<td>In NOC</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PCDD/F + PCB-DL*</td>
<td>In NOC</td>
<td>-</td>
</tr>
</tbody>
</table>

* Conditional/Optional (See BATAEL tables in Session 4 above)  ** CO: IED Annex IV either ½-hr or 10-min
The EOT includes most OTNOC situations (in addition to all NOC situations)

Compliance with BATAEL-based ELVs not required in **OTNOCs**
Compliance with continuous Annex VI ELVs required for incinerators as well in **R-EOT**

According to IED, Articles 14.1.f and 47

According to Guidelines (Decision 2012/119/EU) in § 4.6.2.2.3.ii and & 5.4.7.2.6

- **OTNOC**: Other Than Normal Operating Conditions - **ELVs**: Emission LIMIT Values
- **R-EOT**: Relevant-Effective Operating Time

<table>
<thead>
<tr>
<th>OTNOCs</th>
<th>R-EOT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <strong>Start-up</strong> &amp; Shut-down periods</td>
<td>1. <strong>Start-up</strong> (ONLY 2nd phase, with waste) &amp; Shut-down (ONLY 1st phase)</td>
</tr>
<tr>
<td>2. <strong>Leaks</strong></td>
<td>2. <strong>Leaks</strong></td>
</tr>
<tr>
<td>3. <strong>Malfunctions</strong></td>
<td>3. <strong>Malfunctions</strong></td>
</tr>
</tbody>
</table>
  - of process equipment including abatement system
  - of measuring equipment |
  - of process equipment including abatement system
  - of measuring equipment |
| 4. **Momentary stoppages** | 4. **Momentary stoppages** |
| 5. **Definitive cessation of operations** | 5. **Definitive cessation of operations** |
| 6. **Breakdown** | 6. **Breakdown** |
| 7. **Bypassing of abatement systems** | 7. **Bypassing of abatement systems** |
| 8. **Regular maintenance** | 8. **Regular maintenance** |
| 9. **Exceptional conditions** | 9. **Exceptional conditions** |
The R-EOT includes NOC and some OTNOC situations.

**BATAEL-based ELVs are applicable in NOC**

<table>
<thead>
<tr>
<th><strong>NOC</strong></th>
<th><strong>OTNOC</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>(Normal Operating Conditions)</td>
<td>(Other Than Normal Operating Conditions)</td>
</tr>
</tbody>
</table>

- **R-EOT** (Relevant Effective Operating Time)
  - Start-up & Shut-down periods (no waste burning)
  - Specific exceptional conditions
  - Momentary stoppages
  - Definitive cessation of operations

- **N-EOT** (Not ‘Effective’) Operating Time
  - Start-up & Shut-down (when waste burning)
  - Leaks
  - Malfunctions of process equipment including abatement system
  - Breakdown
  - Bypassing of abatement systems
  - Regular maintenance (online)
  - Exceptional conditions

- **NR-EOT** Non Relevant Effective Operating Time

A non-exhaustive list of OTNOC is given in IED, Article 14.1.f. (OTNOC “such as start-up and shut-down operations, leaks, malfunctions, momentary stoppages and definitive cessation of operations”) and in Article 47 (“In the case of a breakdown, the operator shall reduce or close down operations as soon as practicable until (NOC) can be restored”). See Items 1 to 6 below.

Three additional OTNOCs are mentioned in the Guidelines (Decision 2012/119/EU) in § 4.6.2.2.3.ii (“bypassing of abatement systems”) & 5.4.7.2.6 (“regular maintenance, exceptional conditions”). See items 7 to 9 below.
OTNOC and NOC situations within the EOT (chronologically)

**EOT**, Effective Operating Time

- **NR-EOT**: Non relevant EOT (continuous IED Annex VI ELVs do not apply)
- **NOC**: Normal Operating Conditions (BATAEL-based ELVs apply)
- **OTNOC**: Other Than Normal Operating Conditions (BATAEL-based ELVs do not apply)

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Missing in the draft WI BREF BAT conclusions

• The BAT conclusions do not include
  • The mention that
    • BATAELs are set in NOC
    • BATAEL-based ELVs should be set in NOC
  • The clear definitions of NOC and OTNOC
    (criteria to switch from one to the other during operation)
  • The calculation rules, e.g.:
    • The rules to calculate a daily average in NOC e.g. when some ½-hr average values of the day were in OTNOC
    • The maximum number of non valid points in a day, etc.
  • The fact that ½-hr BATAELs of 2006 WI BREF do not apply
  • The fact that continuous sampling is usually performed in R-EOT (and not in NOC)

• NOC: Normal Operating Conditions
• OTNOC: Other Than Normal Operating Conditions
• BATAELs: BAT Associated Emission Levels
• ELVs: Emission Limit Values
The nature of BATAELs changed between IPPC and IED

- **Former** BATAELs (under IPPC) were typical values. See yellow oval.
- **New** BATAELs are capping values. They should be based on maximum daily average values of the year in NOC. See orange circles.
- Former BATAELs should not be used under IED.
  - Important because no new BATAELs for ½-hr averages in the revised WI BREF
Proposals 1

• Definition of OTNOCs
  • To use the list given in the IED and in the BREF drawing up Guidance (Decision 2012/119/EU)
  • To use the same rules as EIPPCB when filtering out the reported data
  • To define end of start-up as when reaching stable state as for LCPs
  • To use control system signals (alarms) to automatically identify OTNOCs and NOC for both:
    • Calculating average values in NOC
    • OTNOC Management Plan (see BAT-c 18)

• Calculation of daily average values in NOC
  • Use the same rules as EIPPCB when processing the reported data
Proposals 2

- ELVs setting and checking
  - No 1/2-hr BATAEL-based ELVs, as said the EIPPCB
  - Using Article 15.3 (b) for assessment of capacity to meet BAT performances, including non exceedance of daily and periodic BATAELs

**Two ways to set BATAEL-based ELVs (always under NOC)**

- **Article 15.3 (a)**
  - "Setting ELVs that do not exceed the BATAELs"
  - To the condition of annual check that emissions in NOC did not exceed the BATAELs

- **Article 15.3 (b)**
  - "Setting different ELVs than those under 15.3 (a)"
  - Example of BATAEL-based ELV according to 15.3 (b)

+ Annual checking that emissions in NOC did not exceed the BATAEL
Thank you!

Questions?