v2

Explanatory & GUIDANCE document (E&G-d) on IED-based (draft) Waste Incineration BREF and BAT conclusions

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ANNEX 6.a

BAT-conclusions checklist for Energy-from-Waste installations incinerating MSW and similar waste and/or Sewage sludge and/or Clinical waste

Table of Content

Foreword

This form (Annex 6.a) has been written for incinerators of municipal and similar waste, non-hazardous commercial and industrial waste, clinical waste and sewage sludge. For the latter two categories, it can be either to dedicated incinerators or to the incineration of this waste with municipal and similar waste.

The incineration BREF also defines BAT for the treatment of incineration bottom ash (IBA). A separate form is available for IBA treatment facility. See Annex 6.b. The BAT conclusions (BAT-c)[1] addressing bottom ash in the incineration plant are dealt with in this form. Those addressing the treatment of bottom ash are in the other form that will also need to be filled in if the IBA treatment facility is on the same site as the incinerator. Some BAT conclusions may have to be applied both in the incinerator plant and in the IBA treatment facility. They appear in both forms.

This form is intended to be used as a basis for the holder (existing installation) or the applicant (new installation) of the permit to operate of each individual facility in order to establish compliance in respect of the implementation of the BAT conclusions of the Incineration BREF (Commission implementation Decision n° xxx, approved on 12/11/2019 and published in the EU Official Journal on xx/xx/2019).

In the form below, a table summarises the techniques to be implemented for each BAT conclusion of the Incineration BREF applicable to incinerators and co-incinerators of non-hazardous waste. For each of these techniques the user must tick the *Yes* or *No* box. According to these indications, he will indicate at the end of the table, (by ticking *Yes* or *No*), , whether the installation complies with all the requests of the BAT conclusion, (e.g. installation compliant with BAT-c conclusion 1 (if all answers above are *Yes or 'Not applicable' for the 3rd one*)).

Caution: some BAT conclusions require that all listed techniques are implemented, others that only one or several are implemented. In some cases, it is requested to implement an *"appropriate combination"* of some of the proposed techniques. The suitability of the combination of techniques implemented (one or more) should be assessed against the objective of the BAT conclusion. For example, BAT conclusion n° 25 aims to reduce emissions of dust and heavy metals to the stack. Technique (c), injection of dry adsorbent reagent, supplemented with technique (a), bag filter, achieves the objective, which is confirmed by measured or expected emissions in the corresponding BATAEL range.

Some of the techniques may not be applicable in certain circumstances. In this case, this is indicated in red and a check box "*not applicable"* (at the installation) is available.

Under the summary table of techniques, it is possible **if necessary** to fill in the headings:

- Justification / references.
- If the installation does not apply the BAT-c conclusion, planned actions.
- Comments.

[1] The wording "BAT" is used in the texts with two different meaning, either "BATs", Best Available Techniques, or "BAT conclusions", which themselves give a list of Best Available Techniques, often numbered a), b), c) etc., allowing to reach the objective of the BAT conclusions. In order to avoid any ambiguity, in this Guidance document, BAT conclusions are called "BAT conclusion 1" to "BAT conclusion 37", or abbreviated into "BAT-c 1" to "BAT-c 37". See Annex 1 to this E&G-d, Section 1.3 and Table 1-1.

For some BAT conclusions linked to emissions, it is also necessary to ensure that emissions under Normal Operating Conditions (NOC) are within the emission ranges associated with BAT (BATAELs).

In such case, a table is provided to analyse the emissions of the installation in respect to these ranges. Indeed, differentiating the normal operating conditions (NOC) and the other than normal operating conditions (OTNOC) was not required before the implementation of the BREF. To ensure that the emissions in NOC are in the range of BATAELs, it will be possible for example to check if:

- For air emissions measured continuously,
  - either the 98th centile of all daily average emissions of the substance over the last 3 years is in the BATAEL range
  - or that over the 3 last years the values above the BATAEL ranges, if any, are not in NOC.
- For air emissions measured periodically or in long-term sampling, the maximum of the emission measurements of the last 3 years are in the BATAEL ranges.
- For liquid discharges measured daily (TSS and T(V)OC),
  - either the 98th centile of all daily average emissions of the substance over the last 3 years are in the BATAEL ranges
  - or that over the 3 last years the values above the BATAEL ranges, if any, are not in NOC.
- For liquid discharges measured monthly, the maximum, excluding the highest value of each year, of the last 3 years are in the BATAEL ranges.
- For unburned in bottom ash, the maximum of all measurements from the last 3 years is in the BATAEL range.

See in Annex 5 to this E1G-d, section "*Proposed method to ensure that emissions do not exceed BATAELs"*

Some tables indicate a BATAEL range for existing installations and a range for new installations. According to the BAT conclusions of the incineration BREF, a new installation is *"A plant first permitted following the publication of these BAT conclusions or a complete replacement of a plant following the publication of these BAT conclusions"* (i.e. the BAT conclusions of the revised incineration BREF).

Most of the questions must be answered by ticking 'Yes', 'No' or 'Not applicable'. However some of them should be answered in written or by selection in a popping menu. They are highlighted in green.

This form can be filled in either for the whole of an installation, in the case for example where all the treatment lines are identical, or at the rate of one per line or per group of treatment lines if necessary (different flue gas treatment systems, different energy efficiency, etc. depending on the lines). The structure of the energy recovery system (one or more condensing or back-pressure turbines and the heat or steam export devices) will also help to determine the number of forms to be established for a given installation. See especially BAT conclusion n° 20.

IDENTITY SHEET of the INSTALLATION

For the COMPLETE installation ☐

Or for one or more lines of the installation ☐, LINE(S) n° :

New ☐ Existing ☐

Installation name :

Important city near the installation:

Address :

Phone :

CONTACT

- First Name, Name :
- Phone :
- E-mail address :

DESCRIPTION of the INSTALLATION

- Capacity:
- Number of lines : Capacity of each line:

For each line treated here, summary description:

- Combustion system (grate, fluidized bed, …):
- Bottom ash treatment on site ☐ off site ☐
  partly on site and partly off site ☐
  Name and location of the bottom ash treatment plant (if not on site):
  CAUTION, if part of the slag treatment takes place in the incineration plant, both forms must be completed
- Condensing turbine(s) number: Individual power:
- Back pressure turbine(s), number: Individual power:
  - Export of steam ☐ of heat ☐
- Flue gas treatment system of each line :
- Other specifics equipment

BAT-c 1 (environmental management system) :

	Applied technique	
Environmental management system implemented (in particular if the facility is EMAS certified or by equivalent standard such as ISO 14001)	Yes ☐	No ☐
OTNOC management plan (with associated action plan)	Yes ☐	No ☐
Management Plan for Odours and/or Noise - **No** sensitive receptor in the surroundings of the site **and** - **No** historical report of odour and/or noise issue by site employees or third parties, nor from survey campaigns showing non-acceptable odour or noise levels.	☐	
	Yes ☐	No ☐
Installation compliant with BAT-c 1 (if all answers above are 'Yes' or 'not applicable')	**Yes** ☐	**No** ☐

Justification / references:

- To justify the implementation of technique 2 (OTNOC Management Plan), it may for example be indicated that the site uses a document such as the one proposed in Annex 2.d (with an associated action plan.

If the installation does not comply with the BAT-c, planned actions:

Comments (if necessary):

BAT-c 2 (calculation of energy efficiency) :

	Applied technique	
Calculation of the energy efficiency achieved (see BAT-c 20, table associated for the calculation)	Yes ☐	No ☐
Installation compliant with BAT-c 2 (if the answer above is 'Yes')	**Yes** ☐	**No** ☐

Justification / references (if necessary) :

If the installation does not comply with the BAT-c, planned actions:

Comments (if necessary):

BAT-c 3 (key process parameters to monitor) :

	Applied technique	
Continuous measurement on flue-gas from the incineration of waste, :		
- flow	Yes ☐	No ☐
- oxygen content	Yes ☐	No ☐
- temperature	Yes ☐	No ☐
- pressure	Yes ☐	No ☐
- water vapour content	Yes ☐	No ☐
Combustion chamber temperature, continuous measurement (T2s)	Yes ☐	No ☐
Waste water **from wet FGC**, continuous measurement :		
- *not applicable (no wet FGC or no liquid discharge from wet FGC)*	☐	
- flow	Yes ☐	No ☐
- pH	Yes ☐	No ☐
- temperature	Yes ☐	No ☐
Installation compliant with BAT-c 3 (if all the above answers are ticked 'Yes' or 'not applicable' for the third item) NB: the technique relating to the measurements on the water from bottom ash treatment is addressed in the form for IBA treatment facilities (see Annex 6.b)	**Yes ☐**	**No ☐**

Justification / references (if necessary):

If the installation does not comply with the BAT-c, planned actions:

Comments (if necessary):

BAT-c 4 (monitoring channelled emissions to air) :

	Applied technique	
Continuous measurement at the stack (flue gas) :		
- NOx	Yes ☐	No ☐
- NH_3	Yes ☐	No ☐
Not applicable (neither SNCR nor SCR)	☐	
- CO	Yes ☐	No ☐
- SO_2	Yes ☐	No ☐
- HCl	Yes ☐	No ☐
- HF	Yes ☐	No ☐
(or exemption in the permit)	☐	
- Dust	Yes ☐	No ☐
- Hg (mercury)	Yes ☐	No ☐
	☐	

Not applicable (low & stable mercury content proven in the waste incinerated; see proposed conditions in comments on BAT-c n°4 in Annex 5 to this E&G-d) - TVOC	Yes ☐	No ☐
Periodic measurement at the stack (flue gas): - N_2O ; once a year minimum Not applicable (neither use of urea for SNCR nor fluidised bed furnace) - Metals and metalloids (As, Cd, Co, Cr, Cu, Mn, Ni, Pb, Sb, Tl, V) ; each 6 month at least - PBDD/F (brominated dioxins and furans) ; each 6 month at least Not applicable (neither waste containing brominated flame retardants nor continuous injection of bromine; see proposed conditions in comments on BAT-c n°4 in Annex 5 to this E&G-d) - PCDD/F (dioxins and furans) ; each 6 month at least - Dioxin-like PCBs ; every 6 month at least Not applicable (emissions < 0,01 ng WHO-TEQ/Nm^3 proven; see proposed conditions in comments on BAT-c n°4 in Annex 5 to this E&G-d; see below long term sampling) - Benzo[a]pyrène; 1 per year minimum	Yes ☐ ☐ Yes ☐ Yes ☐ ☐ Yes ☐ Yes ☐ ☐ Yes ☐	No ☐ No ☐ No ☐ No ☐ No ☐ No ☐
Long term sampling (stack emissions), one per month at least: - PCDD/F (dioxins and furans) Not applicable (emissions levels are proven to be sufficiently stable; see proposed conditions in comments on BAT-c n°4 in Annex 5 to this E&G-d) - Dioxin-like PCBs Not applicable (emissions < 0,01 ng WHO-TEQ/Nm^3 proven, for instance by 6 consecutive monthly measurements; see proposed conditions in comments on BAT-c n°4 in Annex 5 to this E&G-d)	Yes ☐ ☐ Yes ☐ ☐	No ☐ No ☐
Installation compliant with BAT-c 4 (if all the above answers are ticked 'Yes' or 'not applicable' for points concerned) NB: the technique relating to possible dust measurements on the air extracted from dusty areas of the bottom ash treatment is dealt with in the form for IBA treatment facilities (see Annex 6.b)	**Yes ☐**	**No ☐**

Justification / references (if necessary) :

If the installation does not comply with the BAT-c, planned actions:

Comments (if necessary):

BAT-c 5 (monitoring channelled emissions to air during OTNOC) :

	Applied technique	
Measurement every 3 years of emissions to the stack during the start-up and shutdown phases without waste combustion (substances to be measured those of the table of BAT-c n°4 = continuously monitored substances + metals + PBDD/F + PCDD/F + dioxin-like PCBs	Yes ☐	No ☐
Installation compliant with BAT-c 5 (if the answer above is 'Yes')	**Yes ☐**	**No ☐**

Justification / references:

- Report available :

If the installation does not comply with the BAT-c, planned actions:

Comments (if necessary):

BAT-c 6 (monitoring emissions to water from FGC) :

	Applied technique	
Not applicable (no discharge to water from FGC)	☐	
Monthly measurements (except TSS) on 24-hour flow-proportional composite samples:		
- TOC	Yes ☐	No ☐
- Total suspended solids (daily measurement)	Yes ☐	No ☐
- As	Yes ☐	No ☐
- Cd	Yes ☐	No ☐
- Cr	Yes ☐	No ☐
- Cu	Yes ☐	No ☐
- Mo	Yes ☐	No ☐
- Ni	Yes ☐	No ☐
- Pb	Yes ☐	No ☐
- Sb	Yes ☐	No ☐
- Tl	Yes ☐	No ☐
- Zn	Yes ☐	No ☐
- Hg	Yes ☐	No ☐
- PCDD/F (dioxins and furans)	Yes ☐	No ☐
Installation compliant with BAT-c 6 (if all the answers above are Yes or 'not applicable' ticked) NB: the technique relating to the measurements on the water from treatment of the bottom ash is treated in the form for IBA treatment facilities (see Annex 6.b)	**Yes ☐**	**No ☐**

Justification / references (if necessary):

If the installation does not comply with the BAT-c, planned actions:

Comments (if necessary):

BAT-c 7 (monitoring of the content of unburnt substances in slags and bottom ashes) :

	Applied technique	
Measure at least every 3 months of the loss on ignition	Yes ☐	No ☐
Measure at least every 3 months of TOC	Yes ☐	No ☐
Installation compliant with BAT-c 7 (if at least one of the answers above is Yes)	**Yes ☐**	**No ☐**

Justification / references (if necessary):

If the installation does not comply with the BAT-c, planned actions:

Comments (if necessary):

BAT-c 8 : (POP content)

Only applies to hazardous waste (except clinical waste).

BAT-c 9 (waste stream management) :

	Applied technique	
a) Determination of the types of waste that can be incinerated (listed in the site permit)	Yes ☐	No ☐
b) Set-up and implementation of waste characterization and pre-acceptance procedure (for waste received other than municipal waste (commercial wastes, ...)) Not applicable (no other waste received than municipal waste)	Yes ☐ ☐	No ☐
c) Set-up and implementation of waste acceptance procedure (for waste received other than municipal waste (commercial wastes, ...)) Not applicable (no other waste received than municipal)	Yes ☐ ☐	No ☐
d) Set-up and implementation of a waste identification system and inventory of waste received (badging) at weighbridge (type, date and time of arrival, producer, tonnage received, etc.) for waste other than clinical waste	Yes ☐	No ☐
d) Trolleys tracking up to furnace loading for clinical waste	Yes ☐	No ☐

Not applicable (no clinical waste treated)	☐	
e) Waste segregation: separate storage for clinical waste trolleys Not applicable (no clinical waste treated)	Yes ☐ ☐	No ☐
f) Verification of waste compatibility prior to the mixing or blending of hazardous wastes Not applicable (no hazardous waste treated)	Yes ☐ ☐	No ☐
Installation compliant with BAT-c 9 (if all the above answers are Yes or if for the techniques b), c), d) point 2, e) and f) 'not applicable' is ticked)	**Yes ☐**	**No ☐**

Justification / references (if necessary):

If the installation does not comply with the BAT-c, planned actions:

Comments (if necessary):

BAT-c 10 : (output quality management system for bottom ash treatment)

Applies to bottom ash treatment plants; see the form devoted to them (Annex 6.b of this E&G-d).

BAT-c 11 (monitoring waste deliveries) :

Municipal waste and other non-hazardous waste

	Applied technique	
Not applicable (no municipal wastes or other non-hazardous waste treated)	☐	
Radioactivity detection	Yes ☐	No ☐
Weighing of the waste deliveries	Yes ☐	No ☐
Visual inspection of the wastes received in the bunker (for example through the control room window, a video surveillance, ...)	Yes ☐	No ☐
Analysis (for example annually) of a sample of received waste : NCV, content of halogens (Cl, F, Br), S and metals/metalloids (the ones monitored in flue gas, moisture and inert fraction)	Yes ☐	No ☐
Installation compliant with BAT-c 11 (if all the above answers are Yes or not applicable ticked)	**Yes ☐**	**No ☐**

Sewage sludge

	Applied technique	
Not applicable (no sewage sludge treated)	☐	
Weighing of the waste deliveries **or** measuring the flow if delivered via a pipeline	Yes ☐	No ☐
Visual inspection of the wastes received (except when closed silo storage or direct supply via pipeline from the producer)	Yes ☐	No ☐

Analysis (for example annual) of a sample of received waste : NCV, content of water, ash and mercury	Yes ☐	No ☐
Installation compliant with BAT-c 11 (if all the above answers are Yes or not applicable checked)	**Yes ☐**	**No ☐**

Clinical waste

	Applied technique	
Not applicable (no clinical waste treated)	☐	
Radioactivity detection	Yes ☐	No ☐
Weighing of the waste deliveries	Yes ☐	No ☐
Visual inspection of the packaging integrity	Yes ☐	No ☐
Installation compliant with BAT-c 11 (if all the above answers are Yes or not applicable ticked)	**Yes ☐**	**No ☐**

Justification / references (if necessary) :

If the installation does not comply with the BAT-c, planned actions:

Comments (if necessary):

BAT-c 12 (handling and storage of waste) :

	Applied technique	
Impermeable surfaces with an adequate drainage infrastructure		
a) Receipt / storage of solid waste (excluding clinical waste) in a sealed bunker (concrete) Not applicable (no storage in bunker)	Yes ☐ ☐	No ☐
a) Receipt / storage of sewage sludge in closed silo (waterproof) or in sealed concrete or metal bunker or direct supply via pipeline from the producer Not applicable (no sewage sludge treated)	Yes ☐ ☐	No ☐
a) Reception / storage of clinical waste trolleys on sealed surface Not applicable (no clinical waste treated)	Yes ☐ ☐	No ☐
a) Regular verification (for example annually) of the sealing of these surfaces / storage in bunker where possible or presence of upstream / downstream piezometers, the monitoring of which showing the absence of pollution / leakage	Yes ☐	No ☐
Adequate waste storage capacity		
b) Maximum volume storage of the municipal waste bunker (stacking included)	m^3	
b) Maximum volume storage of the bunker or silo for sewage sludge	m^3	
b) Number of maximum clinical waste trolleys (full) storable	xx	
b) Regular check that these volumes are not exceeded	Yes ☐	No ☐

b) Maximum time before treatment (since arrival on site) for clinical waste	h	
Installation compliant with BAT-c 12 (if all the above answers are Yes or not applicable ticked for points 1 to 3)	**Yes** ☐	**No** ☐

Justification / references (if necessary):

If the installation does not comply with the BAT-c, planned actions:

Comments (if necessary):

BAT-c 13 (storage and handling of clinical waste) :

	Applied technique	
Not applicable (no clinical waste treated)	☐	
a) Automated or semi-automated waste handling: Unloading / manual storage of closed trolleys and automatic feeding of hoppers ovens (transport chain / automatic feeding)	Yes ☐	No ☐
b) Incineration of non-reusable sealed containers, if used: Clinical waste received in closed containers, incinerable, puncture-proof if needles and sharps are disposed of in. These containers are transported in specific trolleys.	Yes ☐	No ☐
c) Cleaning and disinfection of reusable containers, if used: Disinfection of empty reusable clinical waste containers (washing machine) + incineration of solid waste recovered during washing	Yes ☐	No ☐
Installation compliant with BAT-c 13 (if all the above answers are Yes or not applicable checked)	**Yes** ☐	**No** ☐

Justification / references (if necessary):

If the installation does not comply with the BAT-c, planned actions:

Comments (if necessary):

BAT-c 14 (combustion management) :

	Applied technique	
a) Waste blending and mixing:	Yes ☐	No ☐

Waste mixed before incineration (in the bunker by the crane operator or by the furnace feed system or by mixing compatible liquid and pasty waste ...) Not applicable (only waste requiring direct injection is treated: clinical waste, odorous waste or emitting volatile substances)	☐	
b) Advanced control system: Combustion managed by an automatic control-command system (automatons + supervision in control room)	Yes ☐	No ☐
c) Optimisation of the incineration process: Optimisation of the combustion (piloted flow rate of waste, T2sd temperature, primary and secondary air flows, etc.).	Yes ☐	No ☐
Installation compliant with BAT-c 14 (if all the above answers are Yes or not applicable ticked for point a) **+ the values in the table below are in the BATAEPL range**	**Yes ☐**	**No ☐**

Justification / references:

Table 5.0 :

Monthly measurements in loss on ignition or TOC content (strike out the useless mention) of the bottom ash on the last 3 years (% on dry). For installations in operation for less than 3 years, indicate the available data. For new installations, indicate the expected values:

	min	max	average	BATAEPL range
TOC	%	%	%	TOC content : 1-3 %
Loss on ignition	%	%	%	Loss on ignition : 1-5 %

If the installation does not comply with the BAT-c, planned actions:

Comments (if necessary):

BAT-c 15 (process management) :

	Applied technique	
Adjustment of the plant's settings: process management procedures (start-up, shutdowns, normal operation, downgraded operation, incidents, emergency shutdowns, ...) in place and applied	Yes ☐	No ☐
Installation compliant with BAT-c 15 (if the answer above is Yes)	**Yes ☐**	**No ☐**

Justification / references (if necessary):

If the installation does not comply with the BAT-c, planned actions:

Comments (if necessary):

BAT-c 16 (shutdown and start-up operations management) :

The goal of the BAT-c is to set up and implement operational procedures to limit as far as practicable shutdown and start-up operations	Applied technique	
24 h /24 operation ; 7 days / 7	Yes ☐	No ☐
Number of scheduled technical stops per line and per year	xx	
Preventative maintenance to limit unplanned shutdowns	Yes ☐	No ☐
Installation compliant with BAT-c 16 (if all the answers above are Yes)	**Yes** ☐	**No** ☐

Justification / references (if necessary):

If the installation does not comply with the BAT-c, planned actions:

Comments (if necessary):

BAT-c 17 (design of the FGC system and of the waste water treatment plant for effluent coming from a wet FGC) :

The goal of the BAT-c is to ensure that the FGC system and the waste water treatment plant are appropriately designed, operated and maintained	Applied technique	
Design values for the FGC system correspond to the waste treated (see table below)	Yes ☐	No ☐
Design values of the waste water treatment plant for effluent coming from a wet FGC correspond to the waste treated (see table below) *not applicable (no wet FGC or no waste water coming from a wet FGC)*	Yes ☐ ☐	No ☐
Procedures for management of these 2 processes (including procedure for managing ELV overruns)	Yes ☐	No ☐
Preventive maintenance to limit incidents on these processes	Yes ☐	No ☐
Installation compliant with BAT-c 17 (if all the above answers are Yes or not applicable ticked for point 2)	**Yes** ☐	**No** ☐

Justification / references:

Design values of the FGC system

	Nominal values	Maximum values
Flue gas flow rate	Nm^3/h	Nm^3/h
NOx at FGC inlet	mg/Nm^3	mg/Nm^3
SO2 at FGC inlet	mg/Nm^3	mg/Nm^3
HCl at FGC inlet	mg/Nm^3	mg/Nm^3

HF at FGC inlet	mg/Nm^3	mg/Nm^3
Dust at FGC inlet	mg/Nm^3	mg/Nm^3
Mercury at FGC inlet	mg/Nm^3	mg/Nm^3
Metals/metalloids (As, Cd, Co, Cr, Cu, Mn, Ni, Pb, Sb, Tl, V) at FGC inlet	mg/Nm^3	mg/Nm^3
PCDD/F (dioxins and furans) at FGC inlet	ng I-TEQ/Nm^3	ng I-TEQ/Nm^3

Design values of the waste water treatment plant for effluent coming from a wet FGC (if applicable)

	Nominal values	Maximum values
Not applicable (no waste water coming from a wet FGC) ☐		
Flow of effluents to treat	m^3/h	m^3/h
TOC at treatment inlet	mg/liter	mg/liter
Total suspended solids (TSS) at treatment inlet	mg/liter	mg/liter
As at treatment inlet	mg/liter	mg/liter
Cd at treatment inlet	mg/liter	mg/liter
Cr at treatment inlet	mg/liter	mg/liter
Cu at treatment inlet	mg/liter	mg/liter
Ni at treatment inlet	mg/liter	mg/liter
Pb at treatment inlet	mg/liter	mg/liter
Sb at treatment inlet	mg/liter	mg/liter
Tl at treatment inlet	mg/liter	mg/liter
Zn at treatment inlet	mg/liter	mg/liter
Hg at treatment inlet	mg/liter	mg/liter
PCDD/F (dioxins and furans) at treatment inlet	ng I-TEQ/liter	ng I-TEQ/liter

If the installation does not comply with the BAT-c, planned actions:

Comments (if necessary):

BAT-c 18 (OTNOC management) :

The goal of the BAT-c is to set up and implement a risk-based OTNOC management plan	Applied technique	
OTNOC management plan, for example by using a document similar to the one attached in Annex 2.c describing OTNOC (excel file) + associated action plan	Yes ☐	No ☐
Correct design of the critical equipment to reduce the OTNOC (for example compartmentalisation of the bag filter or techniques to avoid the bypass of the bag filter during start-ups and shutdowns, ...)	Yes ☐	No ☐
Preventive maintenance to limit incidents on critical processes (in connection with previous action plan)	Yes ☐	No ☐

Estimation of pollutant emissions during OTNOC phases not included in the EOT Effective Operating Time) phases (start-up and shutdown phases without waste incineration, emergency shutdowns); preventive action if necessary to limit these emissions	Yes ☐	No ☐
Installation compliant with BAT-c 18 (if all the above answers are Yes)	**Yes ☐**	**No ☐**

Justification / references (if necessary):

If the installation does not comply with the BAT-c, planned actions:

Comments (if necessary):

BAT-c 19 (Energy efficiency - heat recovery boiler) :

	Applied technique	
All treatment lines are equipped with an energy recovery boiler	Yes ☐	No ☐
Installation compliant with BAT-c 19 (if the answer above is Yes)	**Yes ☐**	**No ☐**

Justification / references (if necessary):

If the installation does not comply with the BAT-c, planned actions:

Comments (if necessary):

BAT-c 20 (energy efficiency) :

	Applied technique	
a) Drying of sewage sludge *Not applicable (no sewage sludge treated)*	Yes ☐ ☐	No ☐
b) Optimization (via control-command) of primary and secondary air flow rates to reduce flue gas flow	Yes ☐	No ☐
b) et c) Flue-gas recirculation	Yes ☐	No ☐
c) Use of integral furnace-boilers	Yes ☐	No ☐
c) Thermal insulation of furnaces and boilers	Yes ☐	No ☐
c) et i) Recovery of heat from the cooling of slags and bottom ashes (dry extractors)	Yes ☐	No ☐
d) Optimization of boiler design (flue gas velocities and distribution, water / steam circulation, convective walls, ...)	Yes ☐	No ☐

d) On-line and off-line (during maintenance stoppages) boiler cleaning systems. Type of on-line boiler cleaning systems (steam, micro-explosions, compressed air, shot blasting, …) :	Yes ☐ xx	No ☐
e) Low temperature flue gas heat exchangers (outside boilers) installed on the course of the FGC system	Yes ☐	No ☐
f) High steam conditions (more than 45 bars abs, 400 °C). Applicable only if electricity production.	Yes ☐	No ☐
g) Cogeneration : electricity production + sale of heat (in steam or hot water form)	Yes ☐	No ☐
h) Final flue gas condenser at the end of the FGC system (to recover the vaporization energy of the water contained in the fumes)	Yes ☐	No ☐
Installation compliant with BAT-c 20 (if the above answers indicate a combination of techniques to achieve an appropriate energy efficiency with respect to BATAEEL (see table below)	**Yes ☐**	**No ☐**

Justification / references:

Table for plants incinerating municipal solid waste, other non-hazardous waste and hazardous wood waste

Plant type		Electricity only. Or cogeneration with condensing turbine able to expand all the steam produced (in case of closure of the steam extraction for sale heat)	Heat only. Or cogeneration with backpressure turbine
		Yes ☐ / No ☐	Yes ☐ / No ☐
BATAEEL range		Existing plants : 20-35 % *New plants : 25-35 %*	72-91 %
We (nominal turbine power in MW) If power is obtained during performance tests, correct it with air condenser nominal vacuum.	design	MW	MW
Qb (nominal boilers power in MW = steam power – feed water power)	design	MW	
Qi (thermal power (as steam or hot water) that is used internally in MW) Accounting in Qi : See Section 3.2 of Annex 4, to this E&G-d -	design	MW	MW
Qhe (thermal power supplied to the heat exchangers, to sale heat, on the primary side in MW)	design		MW
Qde (directly exported thermal power (as steam or hot water) in MW; power output - power return)	design		MW
Qth (thermal input to the thermal treatment units (e.g. furnaces), in	design	MW	MW

MW = nominal hourly tonnage incinerated x nominal NCV)			
ηe (= We/Qth x (Qb/(Qb-Qi))	Compliant	%	
ηh (= (We + Qhe + Qde + Qi) / Qth			%

Items highlighted in green can be modified via choice lists (click on them).

If none of the 2 cases is representative of the installation, a specific calculation can be considered if the installation can be virtually shared into parts comparable to one or the other case.

Table for plants incinerating sewage sludge only

Boilers efficiency	design	Xx %
BATAEEL range		60-70 %

If calculated energy efficiency is not in the BATAEEL range, actions considered:

For ηh: if installation value <72% and if no other heat consumers close to the installation, no further action to be taken. If heat consumers close to the installation → discussions to be initiated by the plant but without constraint of result (if potential consumer does not want available heat for example, the action of the plant stops at this point).

Comments (if necessary):

BAT-c 21 (diffuse emissions management, including odour) :

	Applied technique	
Enclosed waste bunker and extracted air used for combustion Not applicable (sewage sludges only is treated and storage in silo)	Yes ☐ ☐	No ☐
Sewage sludge storage put in depression and extract air treated (used for combustion, connection to an air treatment / deodorization circuit, ...) Not applicable (no sewage sludge treated)	Yes ☐ ☐	No ☐
During stoppages of all lines: - The air extracted from the waste storage bunker is treated in a suitable system (biofilter, ...) - Storage in the bunker is minimized (diversions, re-evacuation of waste in bunker, ...) - The received waste is baled	 Yes ☐ Yes ☐ Yes ☐	 No ☐ No ☐ No ☐
Installation compliant with BAT-c 21 (if the answer to points 1 and 2 is Yes or not applicable ticked and at least one of the answers in point 3 is Yes)	**Yes** ☐	**No** ☐

Justification / references (if necessary) :

If the installation does not comply with the BAT-c, planned actions:

Comments (if necessary):

BAT-c 22 : reduction of diffuse emissions of volatile compounds from the handling of gaseous and liquid wastes

This BAT-c is for installations incinerating gaseous or liquid waste. Outside the scope of this E&G document.

BAT-c 23 et 24 : reduction of diffuse dust emissions to air from the treatment of slags and bottom ashes

Concern the bottom ash treatment plants; see the form dedicated to them. (Annex 6.b to this E&G-d)

BAT-c 25 (reduction of channelled emissions to air of dust, metals and metalloids) :

	Applied technique	
a) Bag filter	Yes ☐	No ☐
b) Electrostatic precipitator	Yes ☐	No ☐
c) Injection into the flue gas of activated carbon or similar (lignite coke, etc.) to capture mercury and other metals	Yes ☐	No ☐
d) Wet scrubber	Yes ☐	No ☐
e) Presence of fixed or moving bed (activated carbon or similar) for capturing mercury and other metals	Yes ☐	No ☐
Installation compliant with BAT-c 25 (if the above answers indicate a combination of techniques appropriate to reduce dust and metals / metalloids emissions **+ emissions shown in the table below (98th centiles for dust, max for metals) within the BATAELs ranges)**	**Yes ☐**	**No ☐**

Justification / references:

Table 5.1 :

Daily averages over the last 3 years measured at chimney (IC 95 subtracted) for dust. Measures of periodic controls over the last 3 years for metals.

For installations in operation for less than 3 years, indicate the available data. For new installations, indicate the expected values:

Line 1: (duplicate and fill in the table below for each incineration line covered in this form)

LINE n°	min	max	average	98e centile	BATAELs ranges
Dust	mg/Nm³	mg/Nm³	mg/Nm³	mg/Nm³	<2 – 5 mg/Nm³
Cd + Tl	mg/Nm³	mg/Nm³	mg/Nm³		<0,005 – 0,02 mg/Nm³

Sb + As + Pb + Cr + Co + Cu + Mn + Ni + V	mg/Nm³	mg/Nm³	mg/Nm³		<0,01 – 0,3 mg/Nm³

If the installation does not comply with the BAT-c , planned actions:

Comments (if necessary):

BAT-c 26 : (emissions of air extracted from dusty areas of slag treatment)

Concern the bottom ash treatment facilities; see the form dedicated to them. See Annex 6.b to this E&G-d.

BAT-c 27 (reduction of channelled emissions of HCl, HF and SO2 to air) :

	Applied technique	
a) Wet scrubber	Yes ☐	No ☐
b) Semi-wet absorber	Yes ☐	No ☐
c) Injection into the flue gas of solid reagent (lime, bicarbonate, ...)	Yes ☐	No ☐
d) Injection of reagent (magnesium, calcium, lime, ...) into a fluidized bed to capture acid pollutants (only for fluidized bed furnaces)	Yes ☐	No ☐
e) Injection of reagent (magnesium, calcium, lime, ...) into boilers to capture acid pollutants. This system cannot be used alone (partial capture of pollutants).	Yes ☐	No ☐
Installation compliant with BAT-c 27 (if the above answers indicate a combination of techniques appropriate to reduce HCl, HF and SO_2 emissions **+ emissions shown in the table below (98th centile) within the BATAELs ranges**)	**Yes ☐**	**No ☐**

Justification / references:

Table 5.3 :

Daily averages over the last 3 years measured at chimney (IC 95 subtracted). For installations in operation for less than 3 years, indicate the available data. For new installations, indicate the expected values:

Line 1: (duplicate and fill in the table below for each incineration line covered in this form)

LINE n°	min	max	average	98th centile	BATAELs ranges Existing plants	*BATAELs ranges New plants*

HCl	mg/Nm^3	mg/Nm^3	mg/Nm^3	mg/Nm^3	<2 – 8 mg/Nm^3	*<2 – 6 mg/Nm^3*
HF	mg/Nm^3	mg/Nm^3	mg/Nm^3	mg/Nm^3	<1 mg/Nm^3	*<1 mg/Nm^3*
SO_2	mg/Nm^3	mg/Nm^3	mg/Nm^3	mg/Nm^3	5 - 40 mg/Nm^3	*5 - 30 mg/Nm^3*

If the installation does not comply with the BAT-c, planned actions:

Comments (if necessary):

BAT-c 28 (reduction of channelled peak emissions of HCl, HF and SO2), only for dry, semi-dry or semi-wet FGC systems :

	Applied technique	
a) Regulation of the injection of reagent with measured HCl and / or SO_2 in chimney or upstream FGC	Yes ☐	No ☐
b) Recirculation of reagents (technique particularly relevant in the case of FGC techniques operating with a high stoichiometric excess)	Yes ☐	No ☐
Installation compliant with BAT-c 28 (if at least technique a) is checked)	**Yes** ☐	**No** ☐

Justification / references (if necessary) :

If the installation does not comply with the BAT-c, planned actions:

Comments (if necessary):

BAT-c 29 (reduction of channelled emissions to air of NOX, N_2O, CO et NH_3) :

	Applied technique	
a) Optimisation of the combustion (controlled waste flow rate, T2s temperature, primary and secondary air flows, etc.).	Yes ☐	No ☐
b) Flue-gas recirculation	Yes ☐	No ☐
c) Selective non-catalytic reduction (SNCR)	Yes ☐	No ☐
d) Selective catalytic reduction (SCR)	Yes ☐	No ☐
e) Catalytic filter bags (with bag filter)	Yes ☐	No ☐
f) Optimisation of SNCR or SCR design and operation (correct reactive ratio over the entire injection section, size of the reagent droplets, flue gas temperature at the reagent injection site, etc.)	Yes ☐	No ☐
g) Wet scrubber (capture of excess NH_3)	Yes ☐	No ☐
Installation compliant with BAT-c 29 (if the above answers indicate a combination of techniques appropriate to the	**Yes** ☐	**No** ☐

reduction of NOx, N2O, CO and NH_3 emissions **+ emissions shown in the table below (98th centile) within BATAELs ranges**)		

Justification / references:

Table 5.4 :

Daily averages over the last 3 years measured in chimney (IC 95 subtracted). For installations in operation for less than 3 years, indicate the available data. For new installations, indicate the expected values:

Line 1: (duplicate and fill in the table below for each incineration line covered in this form)

LINE n°	min	max	average	98th centile	BATAELs ranges Existing plants	*BATAELs ranges New plants*
NOx	mg/Nm³	mg/Nm³	mg/Nm³	mg/Nm³	50 – 150 mg/Nm³ (180 if SCR not applicable)	*50 – 120 mg/Nm³*
CO	mg/Nm³	mg/Nm³	mg/Nm³	mg/Nm³	10 -50 mg/Nm³	*10 -50 mg/Nm³*
NH_3	mg/Nm³	mg/Nm³	mg/Nm³	mg/Nm³	2 -10 mg/Nm³ (15 if SNCR)	*2 -10 mg/Nm³*

If the installation does not comply with the BAT-c, planned actions:

Comments (if necessary):

BAT-c 30 (reduction of channelled emissions to air of organic compounds including PCDD/F and PCBs) :

	Applied technique	
a) Optimisation of the combustion (controlled waste flow rate, T2s temperature, primary and secondary air flows, etc.).	Yes ☐	No ☐
b) Control of incinerated waste + correct mixing in bunker	Yes ☐	No ☐
c) On-line and off-line (during technical stops) boiler cleaning	Yes ☐	No ☐
d) Rapid flue-gas cooling between 400 et 250 °C (boiler design)	Yes ☐	No ☐
e) Injection into the flue gas of reagent (activated carbon, lignite coke, etc.) + bag filter	Yes ☐	No ☐
f) Presence of fixed or moving bed (activated carbon or similar) to capture organic compounds	Yes ☐	No ☐
g) Presence of SCR designed to treat dioxins and furans and PCBs	Yes ☐	No ☐
h) Presence of a bag filter with catalytic bags	Yes ☐	No ☐
i) Injection of activated carbon (or similar) in scrubbers or presence of activated carbon impregnated elements in scrubbers	Yes ☐	No ☐

Installation compliant with BAT-c 30 (if the above answers are Yes for techniques a) to d), at least one of the answers is Yes for techniques e) to i) **+ emissions shown in the table below (98th centile for TVOC, maximum for PCDD/F and PCB-DL) within BATAELs ranges**)	**Yes** ☐	**No** ☐

Justification / references:

Table 5.5 :

Daily average over the last 3 years measured in chimney (IC 95 deduced) for TVOC. For installations in operation for less than 3 years, indicate the available data. For new installations, indicate the expected values.

Periodic and semi-continuous measurements over the last 3 years for dioxins and dioxins + dioxin-like PCBs (if available) For installations in operation for less than 3 years, indicate the available data. For new installations, indicate the expected values:

Line 1: (duplicate and fill in the table below for each incineration line covered in this form)

LINE n°	min	max	average	98 centile	BATAELs ranges Existing plants	*BATAELs ranges New plants*
TVOC	mg/Nm^3	mg/Nm^3	mg/Nm^3	mg/Nm^3	3 - 10 mg/Nm^3	*3 - 10 mg/Nm^3*
PCDD/F (Average over the sampling period)	ng I-TEQ/Nm^3	ng I-TEQ/Nm^3	ng I-TEQ/Nm^3		<0,01 – 0,06 ng I-TEQ/Nm^3	*<0,01 – 0,04 ng I-TEQ/Nm^3*
PCDD/F (Long-term sampling period)	ng I-TEQ/Nm^3	ng I-TEQ/Nm^3	ng I-TEQ/Nm^3		<0,01 – 0,08 ng I-TEQ/Nm^3	*<0,01 – 0,06 ng I-TEQ/Nm^3*
PCDD/F + dioxin-like PCBs (Average over the sampling period)	ng WHO-TEQ/Nm^3	ng WHO-TEQ/Nm^3	ng WHO-TEQ/Nm^3		<0,01 – 0,08 ng WHO-TEQ/Nm^3	*<0,01 – 0,06 ng WHO-TEQ/Nm^3*
PCDD/F + dioxin-like PCBs (Long-term sampling period)	ng WHO-TEQ/Nm^3	ng WHO-TEQ/Nm^3	ng WHO-TEQ/Nm^3		<0,01 – 0,1 ng WHO-TEQ/Nm^3	*<0,01 – 0,08 ng WHO-TEQ/Nm^3*

If the installation does not comply with the BAT-c, planned actions:

Comments (if necessary):

BAT-c 31 (reduction of channelled mercury emissions to air) :

	Applied technique	
a) Wet scrubber with low pH (around 1)	Yes ☐	No ☐
a) Injection of reagent (hydrogen peroxide, sulphur compounds, activated carbon or similar, TMT15, ...) into the scrubbers to capture mercury	Yes ☐	No ☐
b) Injection into the flue gas of activated carbon or similar (lignite coke, etc.) to capture mercury + bag filters	Yes ☐	No ☐
c) Injection of activated carbon (or similar) with additives (bromine, sulphide ...) to capture the mercury peaks + bag filter. Usually only during peaks of mercury.	Yes ☐	No ☐
d) Injection of bromide into boilers or furnaces. Usually only during peaks of mercury.	Yes ☐	No ☐
e) Presence of fixed or moving bed (activated carbon or similar) to capture mercury.	Yes ☐	No ☐
Installation compliant with BAT-c 31 (if the above answers indicate a combination of techniques appropriate for the reduction of mercury emissions **+ emissions shown in the table below (98th centile for continuous measurements, maximum for periodic ones) within the BATAEL range**)	**Yes ☐**	**No ☐**

Justification / references:

Table 5.6 :

Daily averages over the last 3 years measured in chimney (IC 95 subtracted), if available, or periodic measurements over the last 3 years. For installations in operation for less than 3 years, indicate the available data. For new installations, indicate the expected values:

Line 1: (duplicate and fill in the table below for each incineration line covered in this form)

LIGNE n°	min	max	average	98th centile	BAT-cAEL range
Hg	µg/Nm^3	µg/Nm^3	µg/Nm^3	µg/Nm^3	<5 – 20 µg/Nm^3

If the installation does not comply with the BAT-c, planned actions:

Comments (if necessary):

BAT-c 32 (waste water streams management) :

	Applied technique	
Separation of clean rainwater, clean cooling water, dirty rainwater (treated before discharge or recycled) and process water (treated before discharge or recycled)	Yes ☐	No ☐
Installation compliant with BAT-c 32 (if the answer above is Yes)	**Yes ☐**	**No ☐**

Justification / references (if necessary) :

If the installation does not comply with the BAT-c, planned actions:

Comments (if necessary):

BAT-c 33 (reduced water usage and prevented or reduced generation of waste water) :

	Applied technique	
a) Waste-water-free FGC techniques (dry, semi-wet, semi-dry, combined or wet without liquid effluents rejects)	Yes ☐	No ☐
b) Injection of waste water from FGC into the hotter parts of the FGC system	Yes ☐	No ☐
c) Recycling of rainwater and / or process liquid effluents	Yes ☐	No ☐
d) Dry bottom ash extractor (without use of water)	Yes ☐	No ☐
Installation compliant with BAT-c 33 (if the above answers indicate a combination of techniques appropriate to the reduction of water consumption and wastewater discharges)	**Yes ☐**	**No ☐**

Justification / references (if necessary) :

If the installation does not comply with the BAT-c, planned actions:

Comments (if necessary):

BAT-c 34 (reduce emissions to water from wet FGC process) :

	Applied technique	
Not applicable (no wet FGC or no liquid discharge from wet FGC)	☐	
a) Optimisation of the combustion (controlled waste flow rate, T2s temperature, primary and secondary air flows, etc.) and of	Yes ☐	No ☐

the FGC system (including optimisation of the design and operation of SNCR or SCR systems)		
b) Equalisation of effluents	Yes ☐	No ☐
c) Neutralisation	Yes ☐	No ☐
d) Physical separation, e.g. screens, sieves, grit separators, primary settlement tanks	Yes ☐	No ☐
e) Adsorption on activated carbon (or similar)	Yes ☐	No ☐
f) Precipitation	Yes ☐	No ☐
g) Oxidation	Yes ☐	No ☐
h) Ion exchange	Yes ☐	No ☐
i) Stripping	Yes ☐	No ☐
j) Reverse osmosis	Yes ☐	No ☐
k) Coagulation and flocculation	Yes ☐	No ☐
l) Sedimentation	Yes ☐	No ☐
m) Filtration	Yes ☐	No ☐
n) Flotation	Yes ☐	No ☐
Installation compliant with BAT-c 34 (if the above answers indicate a combination of techniques appropriate to the reduction of pollutant emissions in liquid effluent discharges coming from a wet FGC or if not applicable is ticked **+ emissions shown in the table below (**Max excluding the highest value of each year) **within BATAELs ranges**)	**Yes ☐**	**No ☐**

Justification / references:

Table 5.7 & 5.8 :

Daily measurements (for total suspended solids), monthly (other pollutants) over the last 3 years measured at the point of discharge of liquid effluents from wet FGC. For installations in operation for less than 3 years, indicate the available data. For new installations, indicate the expected values:

	min	max	average	Max (excluding the highest value of each year)	98^{e} centile	BATAELs ranges
Total suspended solids (TSS) Not taken into account if effluents released in an external WWTP	mg/l	mg/l	mg/l		mg/l	10 -30 mg/l
TOC Not taken into account if effluents released in an external WWTP	mg/l	mg/l	mg/l		mg/l	15 - 40 mg/l
As	mg/l	mg/l	mg/l	mg/l		0,01 – 0,05 mg/l

Cd	mg/l	mg/l	mg/l	mg/l		0,005 – 0,03 mg/l
Cr	mg/l	mg/l	mg/l	mg/l		0,01 – 0,1 mg/l
Cu	mg/l	mg/l	mg/l	mg/l		0,03 – 0,15 mg/l
Hg	mg/l	mg/l	mg/l	mg/l		0,001 – 0,01 mg/l
Ni	mg/l	mg/l	mg/l	mg/l		0,03 – 0,15 mg/l
Pb	mg/l	mg/l	mg/l	mg/l		0,02 – 0,06 mg/l
Sb	mg/l	mg/l	mg/l	mg/l		0,02 – 0,9 mg/l
Tl	mg/l	mg/l	mg/l	mg/l		0,005- 0,03 mg/l
Zn	mg/l	mg/l	mg/l	mg/l		0,01 – 0,5 mg/l
PCDD/F (dioxins & furans)	ng I-TEQ/l	ng I-TEQ/l	ng I-TEQ/l	ng I-TEQ/l		0,01 – 0,05 ng I-TEQ/l

These BATAELs may not apply to indirect emissions (external WWTP releases) if the wastewater treatment plant downstream of the site is designed and equipped to reduce the pollutants involved, provided that this does not result in higher level of pollution in the environment.

If the installation does not comply with the BAT-c, planned actions:

Comments (if necessary):

BAT-c 35 (handle and treat bottom ashes separately from FGC residues) :

	Applied technique	
Separation of bottom ashes and FGC residues	Yes ☐	No ☐
Installation compliant with BAT-c 35 (if the answer above is Yes)	**Yes** ☐	**No** ☐

Justification / references (if necessary) :

If the installation does not comply with the BAT-c, planned actions:

Comments (if necessary):

BAT-c 36 (increase resource efficiency for the treatment of slags and bottom ashes) :

On site ☐

or on the bottom ash treatment platform ☐

	Applied technique	
a) Screening and sieving	Yes ☐	No ☐
b) Crushing	Yes ☐	No ☐
c) Aeraulic separation (light fractions)	Yes ☐	No ☐
d) Recovery of ferrous and non-ferrous metals	Yes ☐	No ☐

e) Ageing	Yes ☐	No ☐
f) Washing	Yes ☐	No ☐
Installation compliant with BAT-c 36 (if the above answers indicate a suitable combination of techniques for the treatment of bottom ash and their possible recovery)	**Yes ☐**	**No ☐**

Justification / references (if necessary) :

If the installation does not comply with the BAT-c, planned actions:

Comments (if necessary):

BAT-c 37 (prevent or, where that is not practicable, reduce noise emissions) :

	Applied technique	
a) Appropriate location of equipment in the buildings and/or equipment far from the boundaries of the site	Yes ☐	No ☐
b) Operational measures: maintenance of equipment, closing of doors and windows requiring it (vis-à-vis noise), operation by experienced staff, avoidance of noisy activities at night, control of noise emitted during maintenance operations, etc.	Yes ☐	No ☐
c) Installation of low-noise equipment (especially when replacing or adding equipment): compressors, pumps, fans, etc.	Yes ☐	No ☐
d) Noise mitigation measures: installation of screens, ...	Yes ☐	No ☐
e) Control of noise emitted by equipment: noise reducers, noisy equipment enclosed in rooms or in acoustic enclosures, acoustic treatment of rooms with noisy equipment ...	Yes ☐	No ☐
Installation compliant with BAT-c 37 (if the above answers indicate a combination of techniques appropriate to reduce or attenuate the noise)	**Yes ☐**	**No ☐**

Justification / references (if necessary) :

If the installation does not comply with the BAT-c, planned actions:

Comments (if necessary):

ALL applicable BAT-c are applied ? **YES** ☐ **NO** ☐

NUMBERS OF NOT APPLIED BAT-c : XX

Comments (if necessary):

Made on (date) …/…../…….. at XX

By :