**ENVIRONMENTAL INSPECTION ACCORDING TO ART. 32 OF LAW ON INSPECTION SUPERVISION**

**INSTALLATION: *name, A/B IPPC code, town, location***

**CHECKLIST – NON/ROUTINARY/CONTROL INSPECTION**

***A/B-IPPC PERMIT NUMBER XXXXX***

***Issued on xxxx, according to the Law of Environment (part XII)***

**IMPORTANT PRELIMINARY INFORMATION**:

The following checklist is a template that can be used by inspectors to prepare their own checklist during the preparation of the inspection to an Electric Arc Furnace (EAF) Iron & Steel installation. The Best Available Techniques (**BATs**) which have been **included in this template belong mainly to the** BAT Reference Document (**BREF**) **for Iron and Steel**.

**If a BAT** is mentioned in the template which **does not belong to that BREF**, **the name of the** corresponding **BREF is provided**.

See more information about these BREF documents and this kind of installations in the Factsheet for EAF Iron & Steel installations prepared by the Twinning project supporting SEI, which is available in SEI’s website, <http://www.sei.gov.mk> , in the section “Documents & links”.

This template of checklist is meant to provide a structure for a homogeneous definition of inspection checklists.

The present checklist includes the following boxes, providing examples of relevant topics to be checked:

**GENERAL DATA**

General elements of management

Communication duties

**SECTORIAL TOPICS**

Air emissions

Noise and vibration

Waste water

Soil and groundwater

Waste

**LIST OF POLLUTANTS TO BE ASSESSED**

**GENERAL DATA**

|  |  |
| --- | --- |
| **Date of Inspection** |  |
| **Type of Inspection** | 🞏 Routinary 🞏 Non Routinary 🞏 Control (follow-up) |
| **Field of inspection** | 🞏 Integrated (all environmental impacts checked)  🞏 Partial (specify laws checked) |
| **Name of Company** |  |
| **Location of the plant** |  |
| **Legal address** |  |
| **Industrial activity[[1]](#footnote-1)** | **Electric Arc Furnace iron & steel installation** |
| **Permit (number, date and title)** |  |
| **Permit holder** |  |
| **Telephone** |  |
| **E-mail** |  |
| **Contact person for integrated permit-related issues** |  |
| **Representative competent authority** |  |

**ADMINISTRATIVE ORGANISATION / INTERNAL CONTROL**

| **TOPIC: GENERAL ELEMENTS OF MANAGEMENT** | | | | |
| --- | --- | --- | --- | --- |
| **Topic** | **What does the permit /National law says** | **What do the BREFs say/which BAT are applicable** | **What to check** | **What has been observed** |
| Presentation of the present state of the plant by the operator by means of layout and drawings |  | No specific obligations in the BREF | Check whether any modifications of the plant occurred which have not been authorized. Check areas of storage and emission points. |  |
| Environmental Management System (EMS) |  | BAT 1 gives 9 criteria of the EMS to be checked | Check the implementation of a structured EMS. In case the installation is EMAS or ISO14001, check validity of the certificate. Interview with operator to assess the application of the procedures. |  |
| Training of personnel |  | See BAT 1 sec. IV under ii (EMS) | Check the existence of an internal Education and Training Plan |  |
| Management of accidents / incidents |  | No specific obligations in the BREF. In Macedonia the (EU) Seveso II Directive is applied  BAT 1 sec IV under viii | Check how incidents have been managed: existing of procedures, register of events, preparing follow up actions. BAT 1 sec .IV under viii prescribes implementation of procedures on emergency preparedness and response |  |
| Maintenance registers |  | See BAT 1 sec.IV under vii (EMS) | Implementation and performance of maintenance procedures |  |
| Energy Management |  | BAT 2, BAT 3 and BAT 5 | Check if(one or a combination) of the techniques and/or organizational measures that are described in the BATs 2, 3 and 5 are applicable for the Electric Arc Furnace plant and if they are in use |  |
| Energy efficiency |  | BAT 94 | Check if continuous near net shape strip casting is justified |  |
| Material Management |  | BAT 6 and 7 | Check if appropriate storage and handling of input materials and production residues is organized including on stockyards, conveyer belts and transfer points.  Check if the selection and inspection of scrap material on contaminants is executed and if the techniques to improve the use and quality of scrap that are described in BAT 7 (a.o.t. acceptance criteria, storage, radioactivity control, sorting and removal of unwanted materials) are implemented. |  |
| Monitoring |  | BAT 13,14, 15 and 16 | Check if the processes are controlled by means of modern computer-based systems from control rooms to ensure stable and smooth processing  Check that the stack emissions of pollutants from the main emission sources whenever BAT-AELs are given are measured continuously in accordance with BAT 14 and 15  (for EAF continuously measurement only for dust emissions from large EAFs)  Check monitoring of the discharge of waste water according to the description in BAT 15  Check if the order of magnitude of diffuse emissions is assessed in accordance with the techniques that are prescribed in BAT 16  (Direct or indirect measurements or calculation with emission factors) |  |

| **TOPIC: COMMUNICATION DUTIES** | | | | |
| --- | --- | --- | --- | --- |
| **Topic** | **What does the permit /National law says** | **What do the BREFs say/which BAT are applicable** | **What to check** | **What has been observed** |
| Self-monitoring report |  | BAT 1 sec. V under i (EMS) | Check the correct transmission of the self-monitoring report by the operator. Check results of the monitoring. |  |
| Incidents/ELV |  | BAT 1 sec. IV under viii  and sec. V under iii (EMS) | Check if the operator communicates incidents and exceedance of ELVs to the competent authority |  |
| Installation changes |  | No specific obligations in the BREF | Check that the operator asked for authorization of changes in the installation |  |

**SECTORIAL TOPICS**

| **TOPIC: AIR EMISSIONS** | | | | |
| --- | --- | --- | --- | --- |
| **Topic** | **What does the permit /National law says** | **What do the BREFs say/which BAT are applicable** | **What to check** | **What has been observed** |
| Pollution abatement systems EAF steelmaking and casting |  | BAT 87 | Check use of material with low or no mercury content  (see also BAT 6 and 7) |  |
| Pollution abatement systems EAF steelmaking and casting |  | BAT 88 | Check if primary and secondary de dusting (incl. scrap preheating, charging, melting, tapping, ladle furnace and secondary metallurgy) is implemented by one of the techniques described in BAT 88 and is followed by de dusting by means of a bag filter.  Check the measurement reports of the BAT–AELs for dust and mercury  The BAT-AEL for dust is  < 5 mg/Nm3as a daily mean average  The BAT-AEL for mercury is  < 0,05 mg/Nm3 determined as the average of the sampling period (discontinuous measurement, spot samples for at least four hours |  |
| Pollution abatement system EAF steelmaking and casting |  | BAT 89 | Check the use of one (or a combination of) the 3 described techniques in the BAT 89 to reduce the formation of PCDD/Fs and PCBs (in combination with the methods described in BAT 6 and 7, the prevention of contamination or precursors of these substances)  Check the measurement reports of the BAT-AEL for PCDD/Fs  The BAT-AEL for PCDD/F is  < 0,1 ng I-TEQ/Nm3 based on  6-8 hour random sample during steady-state conditions |  |
| Pollution abatement systems EAF steelmaking and casting |  | BAT 90 | Check the use of one (or a combination of) the 5 emission reducing techniques that are mentioned in BAT 90 for the reduction of dust emissions and check emission levels  The BAT-AEL for dust is < 10-20mg/Nm3 when the extraction technique (I) with slag-crusher is used. |  |
| Pollution abatement systems EAF steelmaking and casting (diffuse emissions) |  | BAT 11 | Check, if applicable, the use of the relevant techniques that are described in the 9 different groups of techniques to prevent or reduce diffuse dust emissions from materials storage, handling and transport. |  |
| Air emission continuous monitoring |  | BAT 1 V under i and BAT 13,  BAT 14, 15 and 16 | Check the program of maintenance and calibration of the air emission measurements equipment and check the monitoring frequency  See also: Monitoring |  |
| Dust |  | BATs 11, 89 and 90 | If not yet checked before in the Pollution abatement systems for EAF steelmaking and casting, , check the appropriate emission reduction technique depending on the equipment used |  |
| Greenhouse gases |  | No specific obligations in the BREF as GHG are not covered by the Industrial emission directive but by the EU Emission Trading System | Presence of CO2 emission inventory |  |

| **TOPIC: NOISE AND VIBRATION** | | | | |
| --- | --- | --- | --- | --- |
| **Topic** | **What does the permit /National law says** | **What do the BREFs say/which BAT are applicable** | **What to check** | **What has been observed** |
| Reduction of noise emissions from relevant sources in the iron and steel manufacturing processes |  | BAT 18 | Check if one or a combination of the 9 measures and techniques that are mentioned in BAT 18 is used and if application of these prevention techniques is adequate to maintain an acceptable noise level |  |
| Reduction of noise emissions from EAF steelmaking installations and processes generating high sound energies |  | BAT 95 | Check if a combination of the 5 techniques that are described in BAT 95 is applied and if this is adequate to maintain an acceptable noise level |  |

| **TOPIC: WASTE WATER** | | | | |
| --- | --- | --- | --- | --- |
| **Topic** | **What does the permit /National law says** | **What do the BREFs say/which BAT are applicable** | **What to check** | **What has been observed** |
| Water and waste water management |  | BAT 12 | Check if the use of potable water is avoided, if contaminated water streams are segregated, internal water recycling is maximized and if non-contaminated water streams are segregated/reused and if other measures stated in BAT 12 are used |  |
| Water and waste water management |  | BAT 91 | Check if water consumption of the EAF installation is minimized by the use of closed loop water cooling systems for the cooling of furnace devices |  |
| Pollution abatement systems for water emissions from EAF steelmaking |  | BAT 92 | Check if water discharge from continuous casting is minimized by the use of flocculation, sedimentation and/or filtration, oil removing by e.g. skimming and recirculation of cooling water and water from vacuum generation.  Check the reporting on BAT-AELs and monitoring frequency. The BAT-AEL for waste water from continuous casting machines based on a qualified random sample or a 24-hour composite sample are:  Suspended solids < 20 mg/l  Iron < 5 mg/l  Zinc < 2 mg/l  Nickel < 0,5 mg/l  Total chromium < 0,5 mg/l  Total hydrocarbons < 5 mg/l |  |

| **TOPIC: SOIL AND GROUNDWATER** | | | | |
| --- | --- | --- | --- | --- |
| **Topic** | **What does the permit /National law says** | **What do the BREFs say/which BAT are applicable** | **What to check** | **What has been observed** |
| Rainwater |  | (BREF “[Common Waste Water and Waste Gas Treatment/ Management Systems in the Chemical Sector](http://eippcb.jrc.ec.europa.eu/reference/cww.html)”)  Process water should be segregated from rainwater and other water effluent, to allow reuse or recycling, as well as to minimise the amount of waste water which requires treatment, the installation of a roof over certain process areas, loading and unloading bays, etc.  Prevention of uncontrolled effluents from the site, such as contaminated rainwater.  Rainwater from production areas is collected either in sumps on the spot or in other central facilities (e.g. emergency storage tanks or lagoons) to allow inspection and then a decision is to be made on whether to discharge it directly to the receiving water or to a waste water treatment facility. | Existence of systems to separate and treat first flush rainwater from later rainfall |  |
| Tank bunds |  | (BREF “Emissions from Storage”)  Design a tank farm bund (or dike) to contain large spills, such as that caused by a shell rupture or a large overfill. The bund consists of a wall around the outside of the tank (or tanks) to contain any product in the unlikely event of a spill personnel both on and off-site.  The volume is normally sized to accommodate the contents of the largest tank within the bund. | Presence of tank bunds to contain spills from storage tanks and drums of waste, to prevent soil contamination in case of leakage. |  |
|  |  |  |  |  |

| **TOPIC: WASTE** | | | | |
| --- | --- | --- | --- | --- |
| **Topic** | **What does the permit /National law says** | **What do the BREFs say/which BAT are applicable** | **What to check** | **What has been observed** |
| Waste generation |  | BAT 93 | Check if waste generation is prevented according to one or a combination of the techniques that are described in BAT 93  Check if EAF residues that cnnot be voided or recycled are managed in a controled manner. |  |
| Waste minimization by internal use or by application of specialized recycling processes |  | BAT 8 | Check if integrated techniques for the recycling of iron-rich residues are used such as the DK process, OxyCup Shaft furnace, smelting reduction processes or cold-bonded peletting/briquetting or other techniques described in the BREF Ch. 9.2-9.7. |  |
| Waste reuse |  | BAT 9 | Check if there is maximum reuse or recycling for solid residues that cannot be recycled acording to BAT 8; check if there is control and management for residues that cannot be avoided or recycled. |  |
| Waste treatment |  | BAT 10 | Check operational and maintenance practices for collection, handling, storage and transport of solid residues and the hooding of transfer points to avoid emissions to air and water |  |
| Decommissioning |  | BAT 17 | Check if design considerations for end-of-life plant decommissioning have been established according to BAT 17 under I and II. (organizational and technical precaution measures) |  |

**LIST OF POLLUTANTS TO BE ASSESSED**

| **Air emission pollutants** | **Waste water pollutants** |
| --- | --- |
| SO2  X | Organohalogen compounds |
| Other S compounds | Organophosphorus compounds |
| NOx X | Organotin compounds |
| Other N compounds | Substances / mixtures possessing carcinogenic/mutagenic properties |
| CO X | Persistent hydrocarbons and persistent and bio accumulative organic toxic substances |
| VOC X | CN X |
| Metals X | Metals X |
| Metals compounds X | Metals compounds X (Iron, zinc, nickel, chromium) |
| Fine particulate matter X | As |
| Asbestos suspended particulates | As compounds |
| Asbestos fibres | Biocides |
| Cl | Suspended solids X |
| Cl compounds X | Nitrates |
| F | Phosphates |
| F compounds X | BOD5 X |
| As | COD X |
| As compounds X |  |
| CN |  |
| Substances / mixtures possessing carcinogenic/ mutagenic properties |  |
| Polychlorinated dibenzodioxins X |  |
| Polychlorinated dibenzofurans X |  |

This is not an exhaustive list. Pollutants that are relevant for EAF Plants are marked with X

1. Define the kind and code of industrial activity according to the Annex I and II of the Ordinance 89/05 [↑](#footnote-ref-1)