

BEST AVAILABLE TECHNIQUES AS CRITERIA FOR EXCLUDING RUSSIAN INDUSTRIAL INSTALLATION FROM THE ENVIRONMENTAL HOT SPOT LIST OF THE BARENTS REGION

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ABSTRACT

The Barents Euro-Arctic Council (BEAC) is the forum for inter-governmental co-operation on issues concerning the Barents region. BEAC unites 13 regions of 4 member countries – Finland, Norway, Russia, and Sweden. The Working Group on Environment (WGE) deals with major environmental challenges. Back in 2003, BEAC issued the Barents Environmental Hot Spots List, which included 42 major polluters located in the Russian part of the Barents region [1].

WGE worked out the “Criteria and Procedure” approach aimed at promoting joint efforts of Hot Spot owners, authorities and financiers to design, fund and implement relevant environmental action projects. Owners of several Hot Spots developed and implemented such plans and improved environmental performance of their installations. In 2017, it was suggested considering opportunities of the new Russian legislation on Best Available Techniques (BAT) [2] to set criteria for excluding industrial installations from Hot Spot List. Full Track Procedure associated with the new legislation was approved.

Two pilot installations – Mondi Syktyvkar Pulp & Paper Plant (Mondi PPP, located in the Republic of Komi) and Petrozavodsk Municipal Wastewater Treatment Plant (Petrozavodsk MWWTP), situated in the Republic of Karelia) – volunteered to be excluded by the Full-Track Procedure. Both installations had completed environmental reconstruction programmes in 2013-2019 and agreed to participate in the procedure, retrospectively describing all steps included in the Full Track Procedure.

For Pulp & Paper sector, Reference Document on BAT (BREF) was issued in Russia in 2015 [3]. In 2019, BAT-associated Emission Limit Values (BAT-AELs) were officially approved by the Order of the Ministry for Natural Resources and Environment. In Russia, it is decided to regulate Municipal Wastewater Treatment (MWWT) sector by BAT approaches; the first BREF was drawn up in 2015 [4] and reviewed in 2019. Still, BAT-AELs have not been approved yet, though they are clearly described in the BREF.

In 2019, Russian and Nordic experts worked out BAT-associated specific exclusion criteria both for Mondi PPP and Petrozavodsk MWWTP. These criteria were discussed with and approved by the regional and international stakeholders. Action plans were

prepared in accordance with BAT legislation as Environmental Performance Enhancement Programmes (EPEPs) aimed at meeting BAT-based exclusion criteria. EPEPs were submitted to the Inter-Departmental Commission co-ordinated by the Ministry for Industry and Trade, assessed by BAT experts and approved by the Commission. Thus, Mondi PPP and Petrozavodsk MWWTP obtained official documents stating that they had meet BAT-AELs and can be excluded from the Hot Spot List as installations compliant with the requirements of Best Available Techniques. In 2020, the decision to exclude both pilot installations from the Hot Spot List was officially approved by the Ministers of Environment of Finland, Norway, Russia, and Sweden.

Keywords: Barents Region, Environmental Hot Spots, Exclusion Procedure, Best Available Techniques, Environmental Performance Enhancement Programmes.

INTRODUCTION

The Environment Action Programme was adopted by the Ministers of the Environment of the Barents Region countries (Finland, Norway, Sweden and Russia) in 1994 and in 2003, a report was released identifying 42 environmental problems (Hot Spots) in the Barents Region requiring urgent action [1]. In 2005, the Ministers of Environment of the four Barents countries defined the goal to start launching investment projects in all of the Barents environmental Hot Spots by 2013 with the aim of eliminating these Hot Spots.

Since early 2000s, the concept of Best Available Techniques (BAT) has been studied, tested and gradually introduced in the Russian Federation. In 2014, the Federal Law of July 21, 2014 No 219-FZ amending the Federal Law No 7-FZ “On Environmental Protection” was adopted by the Government [2]. This new Law is often called “The RF BAT Law” since it introduced the BAT concept and Integrated Environmental Permits (IEPs) to Russian environmental legislation [5]. Thus, the BAT Law opened opportunities to apply BAT principles for excluding installations from the Hot Spots List based on the BAT implementation and development of Environmental Performance Enhancement Programmes (EPEPs). The Government Decree setting requirements to considering and approving EPEPs passed back in 2015 [6] and amended later in 2019.

According to the Federal Project “Best Available Techniques” (an integral part of the National Project “Ecology” (Environment)) [7], there are 239 installations operating within the territory of the Barents Euro-Arctic region that have to implement BATs and obtain Integrated Environmental Permits in 2019-2024. These installations include Pulp & Paper Plants (including former and current Hot Spots), Hydrocarbons Exploration Industries, Large Combustion Plants, Mining and Metallurgical Industries (among which there are also former and current Hot Spots), Municipal Wastewater Treatment Plants, etc.

HOT SPOT EXCLUSION PROCEDURE

The Hot Spot Exclusion Procedure (HSEP) was developed and presented to the Ministers of Environment of four Barents countries back in 2010. According to the concept, the Full Track HSEP consists of eight consequent phases:

1. Initiation of Exclusion
2. Screening and Analysis
3. Definition of Hot Spot issue and exclusion criteria
4. Drafting of Action Plan
5. Approval of Action Plan
6. Implementation of Action Plan
7. Application for Exclusion
8. Exclusion from the Barents Environmental Hot Spot List

The main actors in the HSEP are respective environmental authority (Federal Supervisory Natural Resources Management Service, Rosprirodnadzor), members of Regional Hot Spot Exclusion Group (HEG) (regional environmental authorities and other stakeholders) and Hot Spot Owner, i. e. company or enterprise that owns certain industrial installation with significant environmental impact. Those three are supported by WGE Subgroup on Hot Spots Exclusion (SHE) providing expert opinion and Nordic Environmental Finance Corporation (NEFCO) responsible for allocating funds (where necessary) for environmental modernisation of certain hot spot.

The key to the objective and scientifically substantiated exclusion procedure is to find viable and veritable criteria – indicators and parameters – that will allow to prove that actions performed by Hot Spot Owner will significantly reduce environmental impact. This is why it is very important that all stakeholders understand the origin of the BAT concept and sources of applicable requirements (Reference Documents on Best Available Techniques, BREFs, and BAT Conclusions containing information on BAT-Associated Emission Levels, BAT-AELs). Figure 1 schematically shows the Full Track procedure.

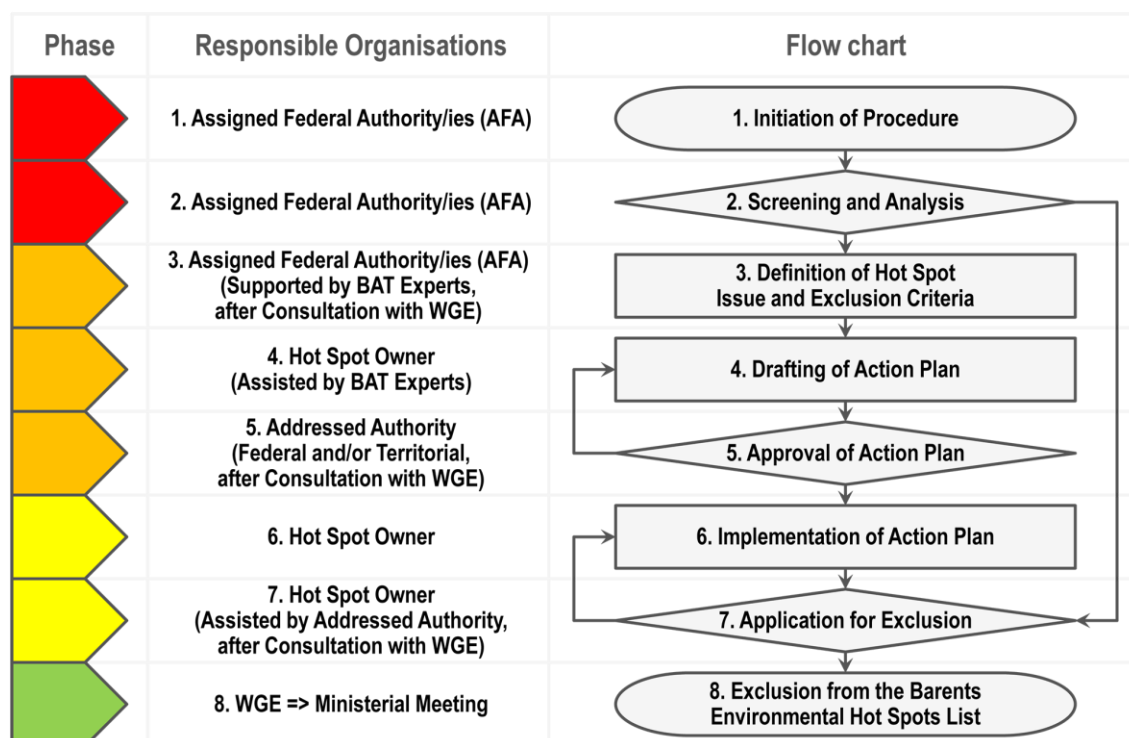


Figure 1. The Full Track Hot Spot Exclusion Procedure

It has to be noted that 2010 Full Track HSEP was upgraded for operative reasons reflecting actual changes in Russian BAT-related legislation, and that it will be suggested for formal upgrade by the Ministers of Environment of the Barents Euro Arctic Council at their next meeting planned till 2023.

HOT SPOT EXCLUSION AND INTEGRATED PERMIT GRANTING PROCEDURES: A BRIEF COMPARATIVE ANALYSIS

Due to the recent changes in the Russian legislation, BAT concept has becoming a staple for new approaches in Russian environmental and industrial regulation [8]. Russian Category I installations [9] (similar to the EU Integrated Pollution Prevention and Control, IPPC installations [10]) have to prove their compliance with applicable BAT requirements and to obtain Integrated Environmental Permits. Installations that cannot immediately achieve BAT requirements, develop Environmental Performance Enhancement Programmes and implement them for no longer than 7 years. It is believed that implementation of EPEPs should allow to significantly improve resource efficiency and environmental performance via the technological modernisation of industry [11]. EPEPs are “fostered” by the Ministry for Industry and Trade and Inter-Departmental Commission on the Consideration of EPEPs (IDC) [6, 11].

In principle, key steps of the Full Track Exclusion Procedure and IEP granting procedure [12] for not fully compliant installations are rather similar (see Fig. 2).

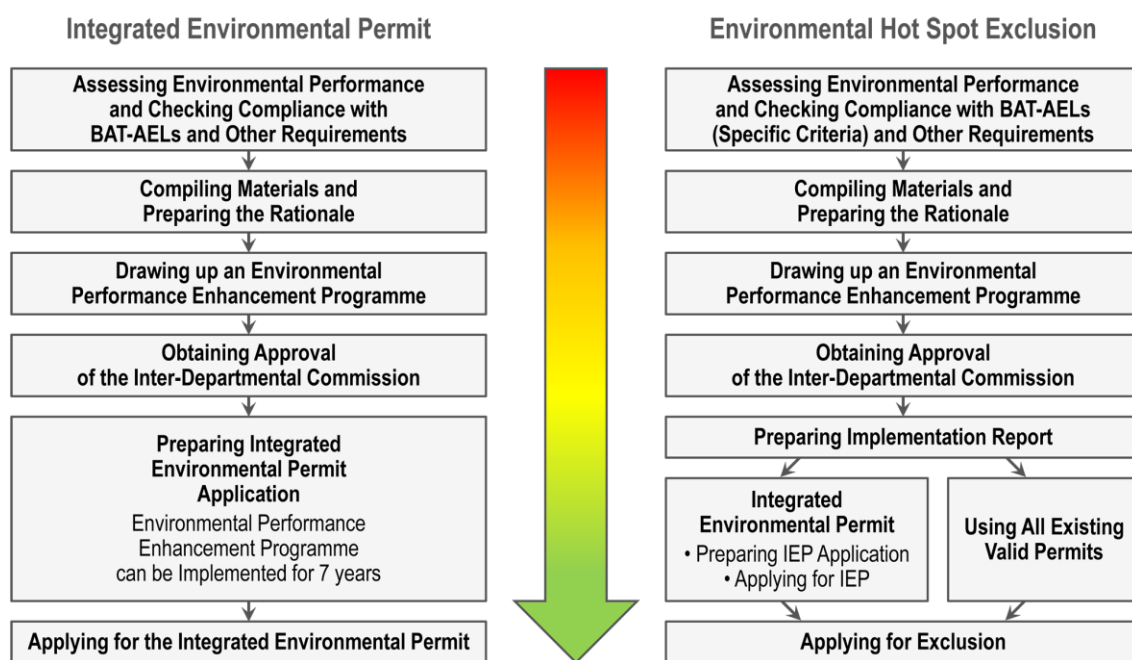


Figure 2. Comparison of (left) Integrated Environmental Permit Granting Procedure and (right) Environmental Hot Spot Exclusion Procedure

The initial steps correspond with each other and have to be made for both purposes:

– environmental performance assessment using applicable BAT-based criteria. In both cases additional criteria (such as compliance with “immission” standards (Maximum Allowable Concentrations) of highly toxic substances in ambient air and/or receiving waterbodies).

– development of comprehensive rationales explaining (1) IEP conditions for which an installation applies for (BAT-AELs and other emission allowances) or (2) environmental performance (BAT-AELs and other parameters) that need to be improved to be excluded from the Hot Spot List.

Though EPEP development and approval steps look identical, they differ because:

– for IEP purposes, Environmental Performance Enhancement Programmes are prepared to be implemented for several years (up to 7). The IDC assesses each draft EPEP to make sure that measures (activities) planned will result in the necessary environmental improvements. IEP is granted on the basis of the approved EPEP; its implementation is closely monitored by Rosprirodnadzor. This means that Category I installations listed as Hot Spots can obtain IEPs without fully implemented EPEPs.

– for HSEP purposes, EPEPs are prepared retrospectively to make sure that achievements reported by the installations allow them to comply with applicable BAT requirements. The IDC checks that specific criteria selected are correct and assesses results achieved by the installations. In such cases, to obtain IEPs, installations do not need to include EPEP approval documents (and EPEPs themselves) to the applications. That is why option of applying for the exclusion with the approved EPEP, Implementation Report and all valid single-medium permits was selected for excluding Mondi PPP and Petrozavodsk MWWTP from the Barents region Hot Spot List in 2019-2020.

BEST AVAILABLE TECHNIQUES AS HOT SPOT EXCLUSION CRITERIA: CASE STUDIES

The revised 2003 Report of the Arctic Monitoring and Assessment Programme (AMAP) and Nordic Environmental Finance Corporation (NEFCO) on Barents Environmental Hot Spots [1] placed Mondi PPP under Ko3 code due to significant emissions to the atmosphere, including specific toxic organoleptic contaminants of special concern, and due to polluted wastewater discharge to the Vychegda river. Following conscious and strategic efforts from the Hot Spot Owner in dialogue with the regional HSE in Komi, the Hot Spot was thematically split into Ko3-1 ‘Emissions to Air’ and into Ko3-2 ‘Discharges to Water’, whereof Ko3-1 was excluded by Fast Track Procedure in 2015 during Ministerial Meeting in Sortavala after having proved that the emissions to air no longer violated the current Russian regulations.

In the same Report, the Petrozavodsk MWWTP was listed as Hot Spot K5 due to significant discharge of poorly treated wastewater into the Onega lake.

Since ambitious reconstruction programmes of (1) Mondi PPP and (2) Petrozavodsk MWWTP were about to be completed in 2019, the Owners together with regional HEGs agreed to take the roles as “double pilots” for the Full Track Exclusion as well as for the elaboration of EPEPs in accordance with the new BAT-based legislation on permit granting. The specific exclusion criteria for Mondi PPP were based on BAT-AELs established in Russian BREF on Production of Pulp, Wood Pulp, Paper and Cardboard (ITS 1-2015) [3] and approved by the Order of Russian Ministry for Natural Resources and Environment No 579 on August 27, 2019 [13] (Table 1).

Thus, BAT-associated specific exclusion criteria were substantiated by Russian and international experts; discussed with and approved by the regional HEG; submitted to

and approved by SHE. Mondi PPP was invited to retrospectively work out an EPEP and submit it to the Ministry for Industry and Trade.

Table 1. BAT-associated emission levels for the direct wastewater discharge to receiving waters for sulphate pulp production

Indicator	Unit	The average annual value for integrated mills			
		Unbleached pulp		Bleached pulp	
		BAT-AEL	Mondi PPP, 2019	BAT-AEL	Mondi PPP, 2019
Chemical oxygen demand (COD)	kg/t	5,00-12,00	9,98	8,00-30,00	12,83
Biological oxygen demand (BOD _{total})	kg/t	0,30-0,70	0,58	0,80-1,20	0,75
Total suspended solids (TSS)	kg/t	0,90-1,20	0,81	0,60-1,90	1,05
Adsorbable organically bound halogens (AOX)	kg/t air dry bleached pulp	–	–	0,25-0,40	0,115
Total nitrogen (N _{total})	kg/t	0,25-0,40	0,33	0,25-0,45	0,43
Total phosphorus (P _{total})	kg/t	0,01-0,04	0,02	0,01-0,04	0,02

Independent experts, members of the BAT Expert Society, reviewed the EPEP and expressed their support to the document emphasising both effectiveness and efficiency of measures (activities) implemented by the Hot Spot Owner. The Inter-Departmental Commission considered both the EPEP and the expert reviews and approved the Environmental Performance Enhancement Programme of Mondi PPP.

The same logic was used for Petrozavodsk MWWTP: the specific exclusion criteria were based on BAT-AELs substantiated by the Russian BREF on Municipal Waste Water Treatment (ITS 10-2015) [4].

Thus, for both Hot Spots:

- the specific Exclusion Criteria were worked out on the basis of applicable BAT requirements, agreed and approved by stakeholders;
- the retrospective EPEPs were considered and approved by SHE;
- the retrospective EPEPs were assessed by the independent Russian BAT experts, both case studies were praised for the technological solutions used by Hot Spot Owners and undertaking activities necessary for achieving BAT and other applicable requirements and reducing environmental impacts;
- the EPEPs and expert reviews were considered and approved by the Inter-Departmental Commission on EPEP responsible in Russia for making decisions on viability of EPEPs;
- the Implementation Reports were prepared in accordance with the recommendations made by SHE, discussed with HEGs, submitted to and approved by SHE.

Thus, for the first time, two environmental Hot Spots underwent the Full Track Exclusion Procedure, proved their compliance with applicable BAT requirements and were successfully excluded from Barents Environmental Hot Spots List at the Ministerial Meeting held in Lulea in February 2020. The work performed on HSEP during 2017-2020 had proven that Best Available Techniques were used as internationally approved criteria for fulfilling international obligations of the Russian Federation [14].

CONCLUSION

In the Barents region, BAT-based EPEPs open a unique opportunity to unbiasedly assess improvements achieved by the Hot Spot installations and support them both in obtaining IEPs and in the exclusion process. In 2019, the Full Track HSE procedure was implemented for the first time. “Double pilots” drew up EPEPs, received approvals, prepared Implementation Reports and applied for the exclusion.

To improve the Full Track Exclusion Procedure, it is suggested to:

- make an official decision on the co-existence of two Hot Spot Exclusion roots (Fig. 2);
- prepare a renewed description of HSEP emphasising BAT-related and other requirements and responsibilities of regional stakeholders;
- to run regional (inter-regional) training and awareness raising events [15] explaining roles and responsibilities of HEG members, communication requirements, and inter-relatedness of HSEP and IEP granting procedures;
- inform potential participants of the next exclusion procedures about the existing requirements and to prepare a “waiting list”; to check if any specific criteria other than BAT-AELs need to be developed (such as Best Environmental Practices for polluted sites management);
- consider opportunities for approving exclusion decisions before the end of the Finnish Presidency (at the beginning of 2023) to motivate Category I installations and owners of other Hot Spots to demonstrate their achievements and implementation of Best Available Techniques or Best Environmental Practices;
- strengthen involvement of regional at all stages of HSEP.

In 2020, Kovdor mining Site owners began showing their interest to Hot Spot Exclusion Procedure. Formally, the site is one of Category I installations and at the same time – a Hot Spot. It could become the next pilot installation for which specific exclusion criteria need to be selected using both internationally approved approaches to mining sites management and applicable Russian BATs and BAT-AELs.

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