



BARENTS EURO-ARCTIC COUNCIL
WORKING GROUP ON ENVIRONMENT
Russian Chairmanship 2014-2015

Meeting on efforts to exclude objects from the list of Barents “hot spots” in Arkhangelsk Oblast

With the participation of the Regional Hot Spot Exclusion Group of Arkhangelsk Oblast, the Subgroups on Hot Spot Exclusion and Cleaner Production and Environmentally Sound Consumption of the Barents Euro-Arctic Council’s Working Group on Environment, and international financial institutions (NDEP, NEFCO)

9th December 2014

Arkhangelsk

Holiday Village “Malye Karely”

Minutes

1. Mr. **Ivan Popov** from the Arkhangelsk Ministry of Natural Resources and Forestry opened the meeting. Representatives of 8 Hot Spots in the Arkhangelsk Oblast, members of BEAC WGE subgroups SHE and CPESC as well as financial institutions, Rosprirodnadzor and other expert organizations were present (List of Participants is enclosed to these minutes).

Mr. Popov noted that the exclusion of the remaining Hot Spots is a priority action for the Ministry. The regional working group for Hot Spot exclusion was established in year 2007. Arkhangelsk Oblast had four more exclusion proposals to be discussed more in detail in the session: Hot Spots A3, A4, A5 and A9 (A3 and A9 are proposed for division into two and partial exclusion). Also new projects at A7 and A9 would be proposed.

2. Ms. **Maria Dronova** (Ministry of Natural Resources and Environment of RF), the Chair of the Barents Euro-Arctic Council’s Working Group on Environment reminded the meeting participants that the Hot Spots are one of the main areas of action in the multilateral Barents environmental co-operation that started over 20 years ago. All of the Barents Hot Spots are located in the five Russian regions in the Barents region and represent issues with industrial pollution, waste and waste water management, water supply etc. During the Swedish WGE chairmanship 2010-2011, the formal procedure for exclusion was elaborated. The screening and analyses reports produced by the regions and evaluated by the international group of experts form a backbone for the procedure.

During the Finnish lead of the WGE, 2012-13, an analysis of the situation was produced with support from NEFCO. Three Hot Spots were excluded from the Barents list in 2011 and three more in 2013. Both times one Hot Spot from Arkhangelsk was included: the stocks of obsolete pesticides (A10) in 2011 and Arkhangelsk heat and power plant (A2) in 2013. The on-going Russian BEAC WGE chairmanship aims at exclusion of several more hot spots at the 2015 ministerial meeting. Practical projects and involvement of the regions and financial institutes are promoted.

3. Mr. **Åke Mikaelsson** (Swedish Environmental Protection Agency), co-chair of BEAC WGE Subgroup on Hot Spots Exclusion presented the 8-step Hot Spot exclusion procedure that aims to improve the state of the environment systematically with the participation of the Hot Spot owners and other stakeholders. The process starts from “red”, mapping of the situation, proceeds to planning and implementation of measures and finally to “green” - the Hot Spot exclusion. Step two of the process

consist of the screening and analyses reports. This step is passed by most of the Arkhangelsk Hot Spots. The two excluded Hot Spots in Arkhangelsk were excluded by fast track procedure, meaning they proceeded from Step 2 straight to step 8. Similar exclusions have taken place also in other regions. The ordinary exclusion procedure would include after mapping of the situation the third step, defining of what should be done in order to be content with the environmental situation. Further, the plan should be approved and implemented. Mr. Mikaelsson presented a template for a document to be used in Step 3. It was noted that the template was not in its final format at it was suggested to replace the somewhat unclear term “specific criteria” with expression “problems that are still existing” or similar in the template. Selected Hot Spots in the Republic of Komi were agreed to be used for the piloting of the template.

4. The representatives of the Hot Spots presented the current situation at Hot Spots.

Ms. **Tatyana Drobeshkina**, Head of the Environment Protection, Working and Industrial Safety Department of Solombala Pulp and Paper Mill (PPM), Hot Spot A1, told the meeting that the plant started to operate in 1936. The plant’s production capacity was 240,000 t of non-bleached coniferous sulphate cellulose until the operations were ceased in 2013. Two partial modernization projects were carried out during the years of the operation.

A common biological wastewater treatment plant for Solombala PPM, Arkhangelsk hydrolysis plant and the household waste waters was designed in 1968. The design capacity of the treatment plant was 355,000 m³/d, but the growth of the city and consequent increase of wastewater volumes led to overloading of the plant in-mid 1980s. This led to partial discharge wastewaters to the recipient water body without necessary biological treatment. A modernization plan of the plant was done but it was not executed due to lack of financing. Since mid-1990s the wastewater volumes from the city have gone down. The city has combined sewers and the inflow volumes follow the seasonal changes.

Solombala PPM proposes to be excluded from the Hot Spot list, since the production at the plant is completely stopped from 2013 onwards. Currently the possibility to start new business activities in the area is considered, but starting the pulp production anew is not foreseen due to the obsolete technique of the plant. The wastewater treatment plant (WWTP) continues to operate. The company wishes to transfer the responsibility from the WWTP operation to the city. This question has not been solved yet. Rosprirodnadzor administration for Arkhangelsk oblast commented that legally Solombala PPM is still an existing company and therefore Rosprirodnadzor cannot at the moment sign any documents stating the company does not exist and that the Hot Spot can be excluded. A control of the combine was carried out by Rosprirodnadzor 7-8 years ago, nitrogen and phosphorous levels are being monitored on regular basis. It is also assumed that up to 80 % from the city waste waters would not reach the combine. A problem is also that the future owner of the wastewater treatment plant has not been clarified.

It was noted that the screening and analysis report for the Hot Spot has not been produced and that Solombala could be a good case for piloting of Step 3 of the exclusion process. As Solombala wastewater treatment plant does not receive all the waste waters of the city but there are also other wastewater plants operated by the city Vodokanal, it would be beneficial to look at the overall situation with the wastewater treatment in Arkhangelsk. What comes to the question on the modernization needs and the treatment results of the Solombala treatment plant, some modernization such as renewing the screens, aeration and sludge dewatering equipment was stated to have taken place. The PPM monitors the treatment results and the monitoring results would be possible to get from them. These actions will be necessary when the new owner of the waste water treatment plant has been defined.

Ms. **Olga Repina**, Head of the Environment Group of the Territorial Generation Company 2 Administration for Arkhangelsk Oblast, presented the situation at Hot Spot A3, Severodvinsk Heat and Power Plants 1 and 2. They supply the companies and the residential buildings of the city with heat and electricity. HPP-2 from year 1976 has electricity production capacity of 410 MWt, for heat – 1,105 Gcal/h. Until 2012, waste fuel oil (mazut) was used as a fuel and the maximum allowable emission levels for sulphate dioxides and nitrogen oxides were exceeded. During 2011-12, all four power generating boilers and two out of three water heaters were switched to use natural gas instead of mazut. This has led to almost 90% reduction in total air emissions between 2010 and 2013 (from over 21,000 t/year to less than 3,000 t/year). Significant reductions have taken place for SO₂ (from 19,000 t to less than 1,000 t) and fuel oil ash emissions.

HPP-1 has operated since 1941, with six power generators and one water heater. The main fuel is coal (mixed from different Russian sources), while mazut is used as assistive fuel. Electricity capacity is 188.5 MWt, heat 679 Gcal/h. All generators are equipped with ash traps and three of them utilizes VIR-technology (vortical low-emission fuel combustion) that helps to reduce emissions of nitrogen oxides. During 2010-13, at least 25% of the fuel has been coal with the lowest possible sulphur and ash content, ash traps have been modernized and the above mentioned VIR-technology implemented. Investment have been worth 25 mln rubles (company's own funds). This modernization allows the plant to keep below the maximum allowable emission levels. SO₂ and fuel oil ash emissions have decreased with some 30 %. Equipment at the plant is considered worn-out and modernization would be needed. Several options have been considered, including conversion to the wet ash method

From the perspective of the Nordic countries, splitting the Hot Spot into two with the subsequent exclusion of HPP-2 seems possible, though the possibility to decrease NO_x-emissions should still be explored. Regional HEG supports the dividing into two and Rosprirodnadzor is ready to exclude HPP-2. Comments from the Nordic experts are now anticipated. Åke Mikaelsson demonstrated, how Step 3 of the exclusion procedure could be implemented with this Hot Spot: the remaining problem is HPP-1 and it should be defined what parameters are aimed to be achieved through the reconstruction. For HPP-2, fast track exclusion would be applied. Rosprirodnadzor supports the exclusion of HPP-2.

Ms. **Evgeniya Moskalyuk**, Head of the Environment Protection Department of OJSC Arkhangelsk Pulp and Paper Mill (Hot Spot A4), told that this paper and cardboard manufacturing enterprise provides heat, power and water supply and waste water treatment services for the town of Novodvinsk. The annual pulp production of the company is over 800,000 tons of paper and cardboard and it is a major source of air emissions and wastewater discharges in the region. From the early 2000s onwards, the company has invested 7 billion rubles into environmental improvements. Between 2003 and 2013, the enterprise reduced its air emissions with some 20 % (total emissions from 50,000 t to 40,000 t, incl. methyl mercaptan from 20 t to 15 t and H₂S from 86 t to 60 t) and discharges of pollutants to water bodies with some 50%. At the same time, the production has increased with 10%. The biggest share of the air pollutants come from the heat and power plant, emitting especially SO₂ and coal ashes (within the maximum allowable emission limit). The modernization performed at the HPP and the PPM include e.g. renovation of part of the boilers including installations of new filters.

The yearly discharges of pollutants to waste water were stated to have decreased from 30,000 tons to some 12,000 tons. COD forms the biggest share of pollutants. Performed water protection actions include e.g. the switch to Elemental Chlorine Free (ECF) production of pulp, reconstruction of the first step aeration tank, reconstruction of the balancing tank and installation of a centrifuge for sludge dewatering. The BOD, COD and suspended solids in relation to the pulp production were shown to be within the BAT limits. No absolute figures were given.

In addition, the reconstruction of cardboard production line is taking place. To its view, the company has done what it is required to do in order to be excluded from the hot spot list. The company is also planning new actions for achieving BAT in different stages of the production and it follows the developments in introducing BAT to Russian legislation (it was also noted that Rosprirodnadzor administration for Arkhangelsk Oblast is organizing a seminar on the issue for the companies on 17th December). The regional HEG and Rosprirodnadzor support the exclusion of Arkhangelsk pulp and paper mill from the hot spot list as a most advanced company in its sphere of production. Hydromet has not recorded high emissions nor has there been complaints from the inhabitants lately. The Nordic experts have given lots of comments on the reports by the company. Answers are being prepared.

Ms. **Galina Khristoforova**, main ecologist of OSJC Ilim Group pointed out that the list of Hot Spots was compiled by AMAP and NEFCO with the main aim to propose environmental investment projects in co-operation with the companies. She saw that there is a risk for the commercial interests of a company if it is included in a hot spot list indicating environmental problems, although that company would not pose danger to people nor cause extreme risks or degradation of the environment. Ms. Khristoforova stated that Koryazhma branch of Ilim Group (Kotlas PPM, Hot Spot A5) is such a company. The production consists of pulp, cardboard and paper. The volume of the whole production is 1.13 mln t/a.

The company has invested 5.5 billion rubles for environmental improvements between the years 2003 and 2013, including a new facility that treats odorous gases. Actions in the wastewater treatment include e.g. replacing old aeration equipment, automatisation of the aeration process as well as installation of belt filter presses for sludge dewatering. Relative and absolute total emissions and discharges of pollutants show significant reductions and values given in BAT reference documents (BREFs) are achieved. The plant has also further modernisation plans. Russian legislation and BAT are guiding the reconstruction actions. The company proposes to be excluded from the Hot Spot list. Rosprirodnadzor, however, noted that in the controls there have been violations of allowed methylmercaptan and sulphur containing emission levels and continuous complaints from the inhabitants. Therefore it can not support the exclusion proposal at the moment.

Ivan Popov provided a summary of Hot Spots A6 (solid municipal waste), A7 (sites of former and current military activities) and A8 (spent motor oil). He noted that inadequate waste management is a common problem in Russia and new legislation would be needed at the federal level. It is necessary to introduce the concept “communal wastes” and to adopt a corresponding federal law. The oblast-level law on wastes, the regional programme “Safe industrial and consumption waste management 2012-14” and the state programme “Environmental protection, regeneration and use of the natural resources in Arkhangelsk oblast 2014-2020” are already adopted and guide the work. In 2013, a concessional agreement (public-private partnership) was signed to create common waste management facilities (recycling stations and landfill) for the cities of Arkhangelsk, Novodvinsk and Severodvinsk. Half of the region’s population live in these three cities. Other actions have been, among others, pilot projects on source separation of waste in Severodvinsk. Investments for solving the waste problem amounted to 153 mln roubles in 2012-14.

According to official data, the major share of spent motor oil is treated in specialized companies. Altogether 17 companies have a licence for such activities. Oil-waste producing companies bear the responsibility for bringing the motor oil to adequate treatment. There have been plans also for

organised centralised collection of the oil wastes in the region. Combining and re-naming of A6 and A8 and continued actions is proposed by the Arkhangelsk HEG.

What comes to the accumulated environmental damage in Arkhangelsk (Hot Spot A7), some 60,000 tons of oil-contaminated waste was accumulated at the Franz-Josef Land archipelago from Soviet-time activities. An inventory from 2011 found 34 polluted objects, including, among others, hundreds of barrels with motor oil, petrol and diesel in the islands. Every spring brigades of workers and volunteers with necessary equipment are brought to the islands to clean-up the accumulated waste. The work is administrated by the Russian Arctic national park. The processed oil products and metal scrap are brought to Arkhangelsk for utilisation. The work will be continued in 2015 and after, until the finalisation of the clean-up. Recovery of oil-polluted soils in Arkhangelsk region was started in 2011 with a NEFCO-financed specification of the project. The action is included in the state programme for 2014-2020. Works started in 2014 are to be continued. Region allocates necessary funds for this every year, 1 mln roubles was given in 2014 for mapping of the oil-polluted soils in the region. Proposals for internationally financed projects are to be given in 2015. It was noted that the screening and analysis report for this Hot Spot was missing but that it will be done in 2015.

Galina Khristoforova presented the situation with dioxines at Koryazhma branch of Ilim Gorup, former Kotlas PPM, since it is (in addition to being Hot Spot A5) one of the objects in Hot Spot A9 – Enterprises of pulp and paper and timber industry as sources of dioxin pollution. She reminded again that the initial idea of the Hot Spot list was to identify environmental investment projects for significant polluters or other concerns. Between 2003 and 2013, the amount of organohalogenic compounds from Kotlas PPM has reduced by 93 % (from 0.3 to 0.04 thousands tons). The Stockholm Convention on persistent organic pollutants foresees actions for reduction and avoidance of emissions from 1) intended production, 2) unintended production (this case: formation of dioxines due to use of chlorine in pulp bleaching), and 3) sources connected with waste management. The plant has switched to elemental chlorine free production and modernized its waste water treatment facilities. The emissions from Kotlas PPM fulfill the pulp and paper industry BREF requirements for AOX (sum of organochloric compounds, soluble or adsorbed to suspended matter). An external accredited laboratory is controlling the emissions. The company proposes to be excluded from the list, since it does not use elemental chlorine and is not therefore a major source of dioxines. Studies on dioxine concentrations in the surrounding areas of the plant have not been conducted.

Evgeniya Moskalyuk addressed the meeting about the situation at Arkhangelsk Pulp and Paper Mill with regards to Hot Spot A9 (dioxine pollution). APPM is one of the several woodworking and pulp/paper producing companies mentioned in the 2003 AMAP/Nefco Hot Spot report as possible sources of dioxines in the Northern Dvina river basin. Bleached pulp is one of the main production items of the plant. The waste waters from the bleaching are treated together with other wastewaters from the production and the city wastewaters of Novodvinsk in the biological treatment plant of the PPM. The recipient of the treated waste waters is the Northern Dvina river. Chlorine was used in the for pulp bleaching at APPM like in other pulp and paper mills in the Soviet Union. Use of chlorine leads to formation of organochloric compounds such as polychlorinated dioxines and furans. Monitoring of AOX from APPM was begun in 1999 by the Institute of Northern Environmental Problems / RAS Ural branch in 1999, and in 2005 APPM switched to Elemental Chlorine Free (ECF) production (before the Russian Federation ratified the Stockholm Convention in 2011). The AOX content of the wastewaters has significantly reduced and is currently within BREF norms. Accredited Moscow-based laboratory is controlling the emissions. Monitoring of the bottom sediments of the Northern Dvina mouth by the Institute of Northern Environmental Problems in 2005 showed reduction of dioxine

content as compared to 2000. With these arguments the company proposes to be excluded from the list.

Mr. **Vyacheslav Belyh**, Environmental Director of the Onezhskiy Sawmill and Woodworking Plant noted that there are 29 other woodworking plants in different parts Arkhangelsk region that have used similar antisectipal treatment with chlorine containing agents. The treatment was performed in a basin and thereafter the logs were dried in open air. This practice has been ended in the 1990s, so additional contamination is not to be expected.

Around Onezhskiy sawmill, bottom sediments of the river were studied in 1999-2000. In 2001, a report pointing out several places of pollution was published. The company is ready to perform further studies in the area, but financing is a problem, as one analysis was stated to cost some 1000 USD. Also, the areas where the logs have been stored are partly covered by asphalt complicates the studies. An additional issue is that if the soil is found to be contaminated, where can it be stored. To question about legislative requirements it was answered that the nowadays private companies cannot be held responsible for the pollution deriving from the former state industries. This object is not in the Federal Programme of past environmental damage. Arctic Contaminants Action Programme under Arctic Council has a subgroup on dioxines that has performed theoretical studies, detailed studies and also started a pilot project in Vorkuta. ACAP has studied altogether some 60 objects in the Barents region, 4-5 more detail. The Onezhskiy sawmill case could be well studied further in the ACAP framework and possibilities for NEFCO financing should be looked upon.

Rosprirodnadzor administration for Arkhangelsk Oblast (Ms. Revura) proposes to divide the Hot Spot into two, to inputs from production and to polluted territories, that is accumulated (past) environmental damage. To Onezhskiy sawmill it was commented that in the 2001 report pollution was found, but as the area is now covered, further inputs of pollutants due to precipitation was not to be expected. Also the level of groundwater is stated to be found to be very low. If pollution was found in sediments/soils, there is no easy answer to what to do with it. What comes to the PPMs, the Institute of Environmental Problems of the North is almost every year monitoring the situation at the Arkhangelsk pulp and paper mill. For Kotlas PPM, Rosprinodnadzor does neither have any fresh figures nor any official data concerning the amount of pollutants in the outflowing waters. The controls were however stated to be done by and accredited laboratory. This information should be sent to Rosprirodnadzor in order to make conclusions.

Finally, it was noted that also the Nordic countries have had problems with the dioxine pollution from past activities. There might be reports/guidebooks worth to translating into Russian.

5. **Jaakko Henttonen**, Director of the Northern Dimension Environmental Partnership (NDEP) and **Henrik G. Forsström**, Barents Hot Spot Facility manager at NEFCO, presented the current situation with international financing for Barents projects. Current topic at the international financing institutions is to define the way how the western sanctions towards Russia are interpreted. In NEFCO, Arctic and Barents priorities are to be kept high on the priority list and there are for example several Arctic Project Support Instrument projects on pipeline. There to be expected are straight or intermediate impacts of the financial sanctions such as stands for projects whose owners include sanctioned companies and changes in the lending environment due to worsened financial situation. The work on high priority projects should continue. NDEP that supports municipal investments (lended money, grants, local funds) for environmental improvements, has financed e.g. wastewater system modernisation activities for Arkhangelsk Vodokanal. No new initiatives are taken forward at the moment. Russia is a strong supporter of NDEP and has recently replenished its support fund. It is

anticipated that the work can be continued again in the future. There are several areas for possible co-operation: examples like the Onezhskiy sawmill has a relation to the ACAP working groups for dioxins and hazardous substances, and obsolete heating systems would provide opportunities to decrease black carbon emissions.

6. The Chair thanked the regional HEG for their work with the screening and analysis report and ended the second extended Barents Hot Spot session.

List of participants

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