

To: Ministry of the Environment
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Svalbard free of local PCB sources

Project Report 2008

This report has been written as feedback from the project manager to the Ministry of the Environment as the client. The report sums up what we have done in 2008 and the activities planned for 2009.

Summary

The PCB Project on Svalbard started up after funding was granted by the Ministry of the Environment. The District Governor and the Norwegian Pollution Control Authority (SFT) manage this project jointly. We cooperate well with the Russian mining company Trust Arktikugol with regard to potential sources from Russian settlements. The project has three main aims:

1. To survey PCBs in all the settlements on Svalbard and the status of the knowledge and administration on Svalbard
2. To phase out PCBs, particularly in the Russian settlements of Barentsburg and Pyramiden
3. To establish international cooperation on the phasing out, treatment and prevention of PCB use

The project work started in 2008 with a broad interdisciplinary working seminar on PCBs on Svalbard, and we have prepared a report of the results in Norwegian, English and Russian. The Geological Survey of Norway (NGU) has surveyed PCBs in the soil and buildings in all the settlements on Svalbard on behalf of the project. The phase-out of condensers containing PCBs from lighting fixtures is complete in the Norwegian settlements. The survey of condensers containing PCBs in Barentsburg and Pyramiden by Trust Arktikugol is complete. Any material containing PCBs from the phase-out has been collected, labelled and packaged, and the first large shipment of PCBs was sent to the Waste Facility in Longyearbyen in October. This was forwarded for destruction by means of the systems for hazardous waste on the mainland. Work on a handbook in Russian for equipment containing PCBs is in progress. The project plans to evaluate the best method available for the destruction of PCBs in Europe.

Project participants from the District Governor, Norwegian Pollution Control Authority and Geological Survey of Norway have participated in an international EU and UNIDO Conference on contaminated soil and PCBs in Bratislava, Slovakia. This has also resulted in additional contacts in UNIDO and Asia, and the establishment of connections in Denmark and Greenland where future cooperation is possible. There is a desire to use experience from the PCB project on Svalbard, in particular, and Norway in general, to influence the phase-out and prevention efforts in the areas of the world that contribute the most to long-range contamination of the Arctic and Svalbard.



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1. Subprojects

1. *Survey of PCBs in settlements on Svalbard and the status of the knowledge and administration:*
 - A broad, interdisciplinary working seminar on PCBs on Svalbard was held, and the results have been compiled and reported in Norwegian, English and Russian. The reports are available, for example, on the District Governor's website. A lot of the project's ongoing work has been aimed at following up the measures recommended in the report. Several holes in our knowledge have been filled during the year as a result of new research. Svalbard's Environmental Protection Fund has also financed some of this activity.
 - All settlements on Svalbard have been surveyed now for PCB contamination in the soil and buildings. The report will be published in 2008, and it will be translated into English and Russian. See enclosed maps.
 - A working meeting has been held with the Russian company Typhoon with regard to the intercalibration of sampling and testing methods. The aim is to create confidence in each others' surveys, a consensus on methods, and possible subsequent cooperation on joint or coordinated environmental monitoring.

2. *Phasing out PCBs, particularly in the Russian settlements of Barentsburg and Pyramiden:*

The survey of the condensers containing PCBs in Barentsburg and Pyramiden by Trust Arktikugol is complete. Status:

 - A total of around 3000 condensers in lighting fixtures have been surveyed
 - Around 20% of these condensers have been collected and delivered to the Waste Facility in Longyearbyen
 - High-voltage units in Pyramiden have been identified for further examination
 - Work has started on an identification handbook in Russian for equipment containing PCBs.

1. *International cooperation on the phasing out, treatment and prevention of PCB use:*

Long-range PCB contamination is probably the largest source of PCBs on Svalbard. It is important, therefore, to work on a reduction in contamination by environmental toxins beyond the project involving the local sources on Svalbard. Results:

 - Proposal for international follow-up was submitted to the Ministry of the Environment in a letter of 23 June 2008 and more details were sent in an e-mail of 8 October 2008.
 - Potential cooperation on PCBs in buildings was aired informally with the Greenland Home Rule and a Danish representative in ACAP.
 - Initiatives were made for cooperation on PCBs in the bilateral environmental protection cooperation with Russia. The Norwegian Pollution Control Authority has received a preliminary positive response from the Russian Ministry of Natural Resources.
 - Participation in the international EU and UNIDO Conference on contaminated soil and PCBs (in Bratislava, Slovakia). Additional contacts established with UNIDO and

Asia. There is a desire to use experience from the Svalbard project, in particular, and Norway in general, to influence the phase-out and prevention efforts in the areas that contribute the most to long-range contamination of the Arctic and Svalbard.

- The project plans to follow up two destruction facilities to evaluate the destruction methods available (BAT), one in Finland (Ekokem) and one in France.

1. Reporting for 2008

The project has performed ongoing follow-up, taken initiatives for measures and continued its work throughout the entire project period up until now. In 2008 we have engaged in the following activities in chronological order:

Grey text indicates additional knowledge obtained irrespective of the PCB Project.

- January: Interdisciplinary working seminar in Trondheim on the PCB status on Svalbard. Ten agencies and research institutions in Norway participated. The report “PCBs on Svalbard. Status of the Knowledge and Administration” was published in Norwegian, English and Russian. The report was distributed broadly to specialist agencies and enterprises in Norway, Svalbard’s Environmental Protection Fund, the various administrative levels, and internationally for cooperation in Russia, ACAP, EU/UNIDO, Denmark/Greenland and China/Philippines. This seminar is also viewed in the same context as the Geological Survey of Norway seminar “PCB – Quo Vadis?” in Trondheim in January 2008.
- March: Grants from Svalbard’s Environmental Protection Fund, in which two PCB projects that follow up the holes in our knowledge listed in the PCB report receive funding.
- April: Analysis of the smoke from the power company in Longyearbyen, which included PCBs. Formation and emission of PCBs was identified. Surveys were initiated via the project.
- May: Continuation of positive PCB cooperation with Trust Arktikugol in an initial working meeting on an indoor survey and phase-out in Barentsburg and Pyramiden. District Governor, Norwegian Pollution Control Authority, Directorate for Civil Protection and Emergency Planning and Trust Arktikugol participated.
- June: New sampling round for PCBs in buildings and soil at Grumant, Colesbukta, Barentsburg, Isfjord Radio, Fuglehuken, Ny-Ålesund, Svea and Longyearbyen. District Governor, Norwegian Pollution Control Authority and Geological Survey of Norway participated. Working meeting with Trust Arktikugol. The results were published in the Geological Survey of Norway Report 2008.073. Verification of survey, labelling and collection in Barentsburg and Pyramiden. Need for collection units for storage and shipment, District Governor orders.
- June: The District Governor, Norwegian Pollution Control Authority and Geological Survey of Norway participated at the international EU/UNIDO Conference in Bratislava, and the trip was also used for working meetings, network building, planning and follow-up, as well as linking the work on Svalbard with the major global emission sources.
- June: Sewer tests from Longyearbyen indicate no discharge of PCBs through the sewer.
- July: Collection units for equipment containing PCBs sent to Barentsburg.
- August: District Governor establishes contact with Greenland Home Rule staff, and the Norwegian Pollution Control Authority has direct contact with a Danish representative in ACAP. Potential cooperation is discussed. Some samples are taken from concrete and paint on buildings in Nuuk for PCB testing. The results indicated PCB content in 2 out of 5 samples. The results were forwarded to Greenland Home Rule, and further cooperation will be discussed.

- October: PCBs in the rest of the settlements on Svalbard will be surveyed when the Geological Survey of Norway takes new samples from Bjørnøya, Hopen and Hornsund. The results will be published, preliminary Geological Survey of Norway Report 2008.Oct. Samples were taken from the Store Norske's purification plant at Longyearbyen, which is to be demolished.
- October: Inspection and follow-up of the elimination of condensers containing PCB with Trust Arktikugol in Pyramiden. Survey of high voltage electrical components with possible PCB content. This will be an important focus of our work locally in 2009.
- October: Working meeting with Trust Arktikugol in Barentsburg. Progress and assessments with regard to the treatment of waste containing PCBs and shipment for destruction. Survey of high voltage electrical components containing PCBs in Barentsburg as well. Establishment of a method of handling individual fractions of hazardous waste (fluorescent tubes) in Barentsburg.
- October: Course/seminar on hazardous waste for enterprises on Svalbard, full-day seminar in Longyearbyen. Aim of this measure was to increase the amount of hazardous waste collected, reduce hazardous waste in residual waste, and increase awareness of hazardous waste and the treatment of such waste in enterprises and among waste collectors.
- November: Working meeting in Tromsø with the Russian company Typhoon (part of the Federal Service for Hydrometrology and Environmental Monitoring under the Ministry of Natural Resources), which conducts the annual Russian environmental surveys on Svalbard (linked primarily to Barentsburg). Presentation of Norwegian PCB surveys and the corresponding Russian surveys. Review of analysis results from intercalibration. Agreement on continued cooperation.

Other work relevant to PCBs in 2008:

- Additional PCB-related field surveys were conducted with support from Svalbard's Environmental Protection Fund, under the direction of Akvaplan-niva and the Norwegian Polar Institute. This work will fill some of the holes in our knowledge that were identified in the PCB Status Report for Svalbard 2008.
- Hazardous waste guide in Russian was sent to Trust Arktikugol on 26 May 2008. Reference was made to this guide at several project meetings. The goal must be treatment of hazardous waste in accordance with the regulations and recommendations given in the guide. Trust Arktikugol contacted Bydrift Longyearbyen AS in November to establish a waste delivery agreement.
- Project staff have participated at several expert meetings organised by NorACIA, including the meetings on nature management, pollution and local adaptations in Longyearbyen. The need for measures for contaminated soil to prevent the spread of PCB contamination due to erosion or a reduction of the permafrost was recorded.
- New knowledge on the PCB content in buildings on Svalbard has been used actively in connection with renovation and demolition work, most recently in connection with the taking of samples and testing of concrete and paint at Store Norske's concentration plant near the airport in Longyearbyen. The soil contains very small amounts of PCB and can be transferred to a disposal site.

Information, media and other cooperation

- In 2008 the District Governor informed about the project by milestones (printout has been enclosed, see also www.sysselmannen.no):

7 November 2008: *[First major delivery of PCB from Barentsburg](#)*

9 June 2008: *[Status of PCB Project on Svalbard](#)*

7 April 2008: *[Status Report for PCB Project on Svalbard](#)*

2 January 2008: *[New Knowledge of PCB Sources on Svalbard](#)*

- The newspaper Svalbardsposten has focused regularly on the project, also in connection with other results of research on environmental toxins. The most important items on the project follow, see also the next page:

13 July 2007: *Looking for PCB Sources*

28 September 2007: *PCBs Found in Pyramiden*

4 January 2008: *Serious PCB Contamination*

14 March 2008: *Phasing Out PCB Work*

9 May 2008: *Stricter Environmental Requirements Announced*

7 November 2008: *First PCB Delivery*

- Morten Jartun at the Geological Survey of Norway has submitted a doctoral dissertation on “*Active sources and dispersion mechanisms of pollutants, especially polychlorinated biphenyls (PCBs), in the urban environment*”. An article was published in the Journal of Toxicology and Environmental Health on 4 August 2008 as part of this work: “*Local sources of polychlorinated biphenyls (PCBs) in Russian and Norwegian settlements on Spitsbergen Island, Norway*”. The authors were: Morten Jartun, Rolf Tore Ottesen, Tore Volden and Qno Lundkvist.
- The project was also contacted by Anna Popova from the Russian consumer affairs regulator, *Rospotrebnadzor*. She was very interested in the PCB Project, and a meeting was held in this regard at the District Governor’s Office in May 2008. The Norwegian Pollution Control Authority has been contacted by a representative from the Duma.

Results of samples taken on Svalbard

The map below shows where samples were taken of the soil, paint, concrete and other smaller building and construction products, and whether PCBs were identified in the samples upon analysis. It was the Geological Survey of Norway (NGU) that was responsible for taking the samples. They have collected and analysed a total of 363 samples. The results were reported in three reports (Geological Survey of Norway Report 2007.075, 2008.073 and preliminary report 2008.Oct for the last samples taken on Bjørnøya and Hopen, and in Hornsund). The reports have been enclosed.



The map shows the locations where PCBs were identified in the samples (red dots) and locations where PCBs were not identified in the samples (green dots). For Bjørnøya, low concentrations were identified in the paint samples from one of the exterior doors. *Map: Norwegian Polar Institute, Norwegian Mapping Authority and District Governor of Svalbard.*

2. Plans for 2009

The project's plans for follow-up and new activities in 2009 are as follow:

- Review of feedback on and documentation of whether the Norwegian enterprises have phased out condensers containing PCBs and labelled all double-glazed windows containing PCBs. Possible follow-up supervision will be considered.
- Collection, packaging/labelling and preparation for shipment of the remaining condensers (estimated 2,400 units) and fluorescent tubes from Barentsburg and Pyramiden.
- Continuation of sampling, testing and possibly a survey and collection of large high-voltage electrical components containing PCBs in Pyramiden and Barentsburg.
- Completion of a handbook for the identification of Russian products and equipment units containing PCBs.
- Seek continuation of PCB work to establish an infrastructure and system for the collection, storage, packaging, labelling and delivery of hazardous waste in Barentsburg (for example, fluorescent tubes and lights, EE waste, batteries and equipment containing PCBs).
- Translation of relevant Russian environmental monitoring reports on PCBs on Svalbard.
- Take the initiative to establish international cooperation. Based on long-range PCB contamination, it is first and foremost important to involve Russia and China, in addition to other countries in the Nordic region and AMAP/ACAP. Treaty country conference?
- Shipment to and treatment of collected PCB-contaminated waste at Ekochem in Finland (most of the Norwegian PCBs are currently shipped there) and shipment of a portion for final treatment in France. The goal is to follow up the actual treatment process, possibly evaluate BAT, and make recommendations for the further treatment of PCB-contaminated waste that is collected in Norway.
- A compilation of all the knowledge of PCB-contaminated soil and buildings in all the settlements on Svalbard, the Geological Survey of Norway will summarise its three surveys. The report will be translated into English and Russian. The knowledge will also be included in the Geological Survey of Norway's publication of the "Geochemical Atlas for Svalbard".
- New working seminar on PCBs and a new status report with an update on the measures and holes in our knowledge from the first report that have been followed up, to be written by the District Governor/Norwegian Pollution Control Authority.
 - o The seminar and report can be postponed until 2010 if some of the important follow-up projects are not completed earlier. The report will be translated into English and Russian.
 - o Consider inviting Russia (Typhoon) to participate in the update, so that the report can also build on Russian research and environmental survey reports.

3. Summary and application for 2009

With this report and our plans for 2009, we are seeking a continuation of the project with funding corresponding to what was granted in 2008. A total of NOK 714,648 of the allocated project funds of NOK 750,000 for 2008 have been used, and agreements have already been entered into for individual activities that will entail financial commitments in 2009.

We request that the Ministry of the Environment advise us quickly if you disagree with our priorities, dispositions or plans for the project in 2009.

4. Appendices

1. Printout of the project's accounts as of 15 November 2008
2. Invoicing of project's expenses as of 15 November 2008
3. Publications (they are available in Norwegian, English and Russian):
 - District Governor Report 1/2008: PCBs on Svalbard, Status of the Knowledge and Administration, April 2008
 - Reports from the Geological Survey of Norway on the surveys of settlements on Svalbard (Report 2007.075, 2008.073 and 2008.Oct)
4. Map illustrating where PCBs have been identified in the settlements on Svalbard
5. Report from the District Governor's pollution expedition from 1 to 5 June 2008 with PCB sampling
6. Letter of 23 June 2008 to the Ministry of the Environment and e-mail of 8 October 2008 with requests and proposals for PCB work
7. Six items on the PCB work in the newspaper Svalbardposten from 2007 to 2008
8. Four items from www.sysselmannen.no on work on the project in 2008