

ACAP

*Arctic Contaminants Action Program to Eliminate Pollution of the
Arctic*

**ACAP
PROGRESS REPORT
TO SENIOR ARCTIC OFFICIALS**

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REPORT TO SENIOR ARCTIC OFFICIALS

Work Plan for 2009-2013 for approval by SAOs in Kautokeino (18-19 November**2008):**

ACAP will continue to implement projects approved by the Ministers to:

- Developing of an Integrated Hazardous Waste Management Strategy in the Northern Regions.
- Complete inventory development and safe storage of obsolete pesticides in the remaining five Russian Arctic and sub-Arctic priority Regions.
- Assess the performance potential Russian hazardous waste destruction facilities with a view to destroy of 100 t obsolete pesticides in an environmentally sound manner using Russian and international standards.
- Implement control technologies for reduction/elimination of dioxin/furan releases at a pulp and paper mill, timber mill, cement factory and municipal waste treatment facilities in the Russian Arctic.
- Complete a feasibility study and initiate a demonstration project for management of mercury-containing waste in Northwest Russia.
- Continue close cooperation with the partnership project in Russia for achieving measurable reductions of uses and releases of mercury at chlor-alkali facilities.
- Continue implementation of demonstration projects to address additional mercury-release sectors in Russia (products, coal-fired power plants, non-ferrous metal production).
- Continue work on brominated flame retardants (BFR) as an information exchange network.
- Forming a new Project steering group in cooperation with RAIPON.
- Implementation of the model projects on safe handling, storage and treatment of local sources of contamination in Nenets Autonomous District, in Chukotka and on Franz Josef Land (FJL).
- Continue work with the Barents Euro-Arctic Council and NEFCO to address "hot spots" in the Arctic.
- Continue close coordination with NEFCO to finance and facilitate implementation of ACAP projects and mobilize the Project Support Instrument (PSI).
- Collaborate with other WGs of the Arctic Council, especially with the AMAP to address its findings and recommendations on the Arctic contaminants and climate change and with SDWG and AMAP to develop the action plan for Human Health Risk Reduction in the Arctic, as a component of the evolving human health cluster.
- Initiate co-operation to address the land-based contamination issues of the oil and gas sectors in the Arctic taking into account the finding and recommendations of the Assessment of Oil and Gas Activities in the Arctic by AMAP.
- Follow the development of the Stockholm Convention with regards to the possible new POPs substances in the future ACAP activities.
- Enhance the outreach and information exchange on demonstration projects results with the aim to promote/reach replication of the successful demonstration projects in a wider context/in the whole Arctic region.
- Enhance the region-wide perspective of the ACAP projects to approach comprehensively the hazardous substances issues/contaminants.

ACAP PROGRESS SINCE SENIOR ARCTIC OFFICIALS MEETING OF APRIL 2008

INTEGRATED HAZARDOUS WASTE MANAGEMENT STRATEGY (IHWMS) (CHAIR: RUSSIA)

Project Steering Group (PSG) chaired by Russia, USA and Norway has worked on development of draft Project Management Plan (PMP) and Terms of Reference (TOR). Draft proposals for pilot demonstration projects from the other ACAP project steering groups are being developed further in parallel with PMP and TOR with a view to achieve synergy in both the individual projects and the overarching IHWMS preparation. Successful implementation of this project is critical to the final destruction and management of the hazardous wastes addressed under the ACAP PCBs, obsolete pesticides, dioxins/furans and mercury projects.

Funding for this project has been contributed by Russia and the United States.

ENVIRONMENTALLY SAFE MANAGEMENT OF STOCKS OF OBSOLETE AND PROHIBITED PESTICIDES IN RUSSIA (CHAIR: FINLAND)

More than 3000 tons of obsolete and prohibited pesticides, from 9 Russian regions impacting the Arctic, have been repackaged under the ACAP Program. The donor countries are currently working with Altai Krai and Krasnoyarsk Krai to complete safe storage activities in the regions. ACAP developed methodology on providing safe storage for pesticides has been utilized in Rostov-on-Don region. In addition, the PSG has started co-operation with a licensed hazardous high temperature incineration facility in Siberia that may potentially destroy also obsolete pesticides in an environmentally sound manner, as required for the successful completion of the project. Fact sheet on obsolete pesticides will be finalized in spring 2009.

Estimated funding required to complete the project: € 400,000

The final phase of this project is demonstrating environmentally sound destruction of 100 t of obsolete pesticides. This phase has been proposed as a possible pilot project for the Integrated Hazardous Waste Management Strategy (reported above).

Results of this project have been reported in three technical papers and five presentations at international meetings.

ENVIRONMENTALLY SOUND MANAGEMENT OF OBSOLETE PESTICIDES STOCKPILES IN REPUBLIC OF KARELIA (FINLAND)

Finnish-Russian co-funded project on environmentally sound destruction of stocks of obsolete pesticides in the Republic of Karelia was successfully completed. More than 12 t of pesticide waste, including persistent organic pollutants (POP), was exported to Finnish hazardous waste destruction facility and destroyed in June 2008.

ENVIRONMENTALLY SOUND MANAGEMENT OF STOCKS OF OBSOLETE PESTICIDES IN THE NORTH WEST REGION OF RUSSIA (DENMARK)

In Vologda approximately 416 tons of obsolete pesticides were collected and sent for long-term storage at a Russian landfill. In Pskov, about 572 tons of obsolete pesticides have been collected and stored in 3 storage facilities. There are still about 500 to 600 tons of obsolete pesticides to be collected in Pskov Region. Denmark recommended that the ACAP Obsolete Pesticides Project Steering Group assume the further work to address the remaining pesticides inventory in Pskov.

REDUCTION/ELIMINATION OF RELEASES OF DIOXINS AND IN THE RUSSIAN FEDERATION WITH FOCUS ON THE ARCTIC AND NORTHERN REGIONS IMPACTING THE ARCTIC (CHAIR: SWEDEN)

During the second phase, the results of the PCDD/F (dioxins/furans) release inventory have been consolidated using results of the sampling and analysis. The project is also exploring different possible options for implementation of Best Available Technologies (BAT) and Best Environmental Practices (BEP) *e.g.*, legislation prescribing technical measures for reduction of dioxin emissions, setting limit values and voluntary commitments by industry.

Phase II, Feasibility Study Report, has developed recommendations on how technical processes, control technologies, information, education and organisation at individual enterprises could be improved in order to decrease the release of dioxins/furans and other environmental pollutants.

The focus has been on the three priority Arctic Regions: Arkhangelsk, Komi and Murmansk. The following facilities have participated in the phase 2 activities:

- Kotlas Pulp & Paper facility (Arkhangelsk Region)
- Vorkutinskiy cement plant (Komi Republic)
- Syktyvkar Timber Mill (Komi Republic) Cleaner Production program only

A separate study is underway at the Murmansk Municipal Waste Incineration Plant.

Phase II Report titled "ACAP Project on Reduction/Elimination of Dioxin and Furan Emissions in the Russian Federation with Focus on the Arctic and Northern Regions Impacting the Arctic. Phase II has been prepared and approved by the SG. Even if a final phase II report has been presented there are still ongoing Phase II activities as the above mentioned study in Murmansk.

Phase III: Implementation of upgrade/retrofitting for source reduction/source elimination of one or more important sources of dioxins and furans. Completion of Phase III is also linked to the development and implementation of the Integrated Hazardous Waste Management Strategy. NEFCO has decided to fund a phase III study based on the phase II report.

Funding

Funding has been contributed by Norway, Sweden, the United States and NEFCO.

Timetable

Phase I: March 2002- April 2005 (**completed**)

Phase II: November 2005 - March 2008 (main part of the project **completed**)

Phase III: March 2008-2010 (**ongoing**)

REDUCTION OF MERCURY RELEASES FROM ARCTIC STATES (CHAIR: DENMARK) MERCURY-CONTAINING WASTE IN NW RUSSIA

Phase I: Assessment of existing and planned initiatives addressing mercury sources in the Arctic States and identification of possible measures for follow up. (**comprehensive reports issued**).

Phase II: Site specific prioritization and selection of demonstration projects (**report completed**).

Phase III: Implementation of a demonstration project

The preparation of the Feasibility Study for the proposed demonstration project on mercury containing waste (MCW) in the NW regions of the Russian Federation is delayed and will be completed beginning of 2009.

The objectives of the study are to:

- Assess the current system (collection-storage-transport-treatment) for management and handling of mercury-containing waste (MCW) in the NW Region of Russia;
- Identify possible gaps;
- Propose specific components for a Demonstration Project, which will lead to establishing of an updated system for management and handling of MCW in the Region, replicable for implementation in other regions of Russia;
- Prepare Terms of Reference, Technical Specifications and a financing plan for the Demonstration Project.

Funding:

Funding has been contributed by Denmark, Norway, Russia and NEFCO.

The total budget for Phase III, Collection and Storage, is estimated at € 162,000. **Estimated funding of € 40,000 is presently required for completion of the project.**

On 20 February 2008 a successful **regional** workshop titled "ACAP Feasibility Study on Mercury-containing Waste in NW Region of the Russian Federation" was hosted by Rostechandzor in Moscow. Major stakeholders including federal and regional organizations of Rostechnadzor, regional administrations and representatives from Russian and European industries participated in the Seminar. **A multidisciplinary approach for improved collection, storage, transport and treatment of mercury containing waste is being developed for a demonstration region. The mercury project may be a component in the integrated hazardous waste management strategy.**

OTHER DEMONSTRATION PROJECTS:

COAL-FIRED POWER PLANT MERCURY CONTROL PROJECT (SWEDEN & USA)

The proposed project shall demonstrate the effectiveness of two types of sorbents in reducing mercury emissions at coal-fired power plants using electrostatic precipitators. The project shall test how well these sorbents perform with different types of coal used in Russia and will complement earlier studies in the U.S. and Canada. The project will also test the leaching potential of the associated waste residues expected to be disposed of in a landfill. The information developed, may be useful not only for Russia and Arctic countries but also for countries such as China and India whose emissions impact the Arctic.

Status: This project is moving forward, under the financial and management authority of the International Science and Technology Center (ISTC). Under the U.S. leadership,, it has been peer reviewed and detailed planning has commenced.

PROPOSED MULTI-POLLUTANT CONTROL PROJECT AT A RUSSIAN ZINC SMELTER (USA & NEFCO)

The proposed project would reduce mercury and other air emissions (including Particulate Matter (PM), sulphur oxides (SOx). and nitrogen oxides (NOx) and releases to land and

water at one Russian zinc smelter. This can provide an effective demonstration to stimulate emissions controls at other Russian zinc smelters. Zinc smelters have been identified by the ACAP Mercury Project Steering Group as one of five priority source emission sectors in Russia.

ACAP MERCURY PARTNERSHIP TO REDUCE MERCURY CONSUMPTION AND RELEASES AT RUSSIAN CHLOR-ALKALI PRODUCTION FACILITIES (USA & RUSSIA)

OBJECTIVE:

Reduce environmental and health impacts through developing and implementing model demonstration projects.

TARGET:

Reduce consumption and release of mercury by at least 500 kg annually - a measurable environmental result.

STRATEGY:

- Build on cooperation with Russian industry, with regulatory authorities, international experts, and the donor countries to develop and implement technical demonstration projects
- Implement best available technologies
- Use best environmental practices
- Provide information and technical support to chlor-alkali production facilities
- Use principles of Cleaner Production

Co-benefits can include:

- Energy conservation
- Waste minimization
- Recycling

This project consists of three phases over seven years:

- **Phase 1 (2005-2006)** Training and implementation of Cleaner Production and Best Environmental Practices (**completed**)
- **Phase 2 (2007-2009)** Implementation of technical improvements (**ongoing**)
- **Phase 3 (2010-2011)** Conversion to non-mercury technologies

Partnership Business Plan was submitted to UNEP Chemicals in January 2008 **Currently** Volgograd "Caustic" is developing a modern waste water treatment system. The Partnership assisted Volgograd "Caustic" with procurement of a special sorbent resin, identified during the partnership technical exchange in 2006. The successful partnership with Volgograd "Caustic" will serve as a model for development of demonstration projects at the two remaining chlor-alkali facilities in Russia. This will achieve measurable reductions of mercury release.

Volgograd "Caustic" reported that as a result of implementation of additional technical improvements, the facility achieved reductions of mercury consumption and releases by an additional 740 kg per year.

As a result of technical exchange in June 2007, Kirovo-Chepetsky Chemical Combine implemented several technical improvements and achieved 842 kg reduction of mercury consumption and release.

PHASE-OUT OF PCBs IN RUSSIA (CHAIRS: RUSSIA, USA AND NEFCO) NEFCO-FUNDED PROJECT

Objectives:

1. Implementation of an environmentally sound technique for emptying and cleaning contaminated PCB-containing transformers,
2. Use of environmentally sound method for destruction of PCB-containing liquids. The technique should also be capable of destroying other hazardous pollutants such as pesticides.

This NEFCO-funded ACAP PCB Project plans to use a vapour-phase solvent cleaning technique to clean and recover the PCBs in transformers. It will also use the high temperature Cyclone Reactor process to destroy the recovered PCBs. Implementation of the project requires securing necessary infrastructure and ancillary facilities, design, construction and operation permits. Activities include:

- Transportation of transformers as well as other containers holding PCBs.
- Recovery of PCBs from transformers/containers and storage.
- Recovery of organic solvent containing PCBs.
- Cleaning of equipment to a level whereby materials can be recycled.
- Disposal of waste (wood, paperboard etc.) in an acceptable manner.
- Destruction of PCB liquids and other toxic organic substances.
- Monitor and control of environmental performance and occupational health and safety. Russian standards and applicable EU Directives are to apply.

Status

The "Cyclone Reactor" technology has received Federal level licensing for destruction of hazardous substance such as PCBs.

NEFCO plans to cooperate with UNDP and Rostekhnadzor to develop project documents for a PCB management project to obtain additional financing through the Global Environment Facility.

Successful completion of this project is also largely dependent on the implementation of the ACAP Integrated Hazardous Waste Management Strategy in Russia.

REDUCTION/ELIMINATION OF SOURCES AND RELEASES OF BROMINATED FLAME RETARDANTS (CHAIR: NORWAY)

The Phase I report, Inventory of sources and identification of BFR alternatives and management strategies, was made available on the AMAP website in October 2008. Data in the published report is valid through 2005, and the BFR PSG will consider updating the phase I report with new data from 2008/2009.

The BFR PSG has not been able to find activities suitable to continue the project in a Phase II yet. As a consequence of this, it has been decided that the BFR PSG should continue as an information exchange forum for the next two years. The organization of this information exchange forum has yet to be decided. However, the BFR PSG will continue to search for suitable phase II projects during the next two year period.

Funding

Funding remaining from the Phase I of the project is expected to be sufficient to cover expenses related to the accomplishment of the information exchange network.

INDIGENOUS PEOPLES COMMUNITY ACTION INITIATIVE (CHAIRS: RAIPON AND USA)

In 2007, ACAP partnered with the Aleut/Pribilof Islands Association, RAIPON, the Chukotka Red Cross and the coastal indigenous communities of Lorino and Lavrentia in the Chukotka Autonomous District of Russia. They conducted two training sessions for 40 volunteer-residents on identification, analysis and removal of drums and storage tanks containing persistent toxic substances.

Residents of these communities have shown some of the highest PCB blood concentrations in Russia. It is estimated that there are over 200.000 drums containing hazardous substances in the vicinity of these communities.

A pilot demonstration program, which can be replicated in other communities, has been developed to include:

- Characterization of the contents of the drums with estimates of volumes and types of waste (e.g. spent oils, lubricants, paints, insecticides, fuels).
- Collection of the drums.
- Disposal/destruction of contents of drums.
- Drum cleaning, compaction and recycling.

The "Abandoned Drums" Workshop was conducted on 9-14 Juny 2008 in Anchorage and Nome - Alaska, USA. Alaska Tribes, representatives of RAIPON, Canadian indigenous communities, Chukotka Red Cross, US and Canadian experts were participating in the Workshop. The Russian delegation was hosted by the US Alaskan Unga Tribe. Workshop components included: capacity building and raising community awareness, health assessments, developing partnerships, assessing local drum sites, responsible parties, environmental hazard, site security and access issues, regulatory overview, use of basic monitoring equipment, inventory and identification, hazardous materials handling and control, drum content characterization, emergency response plans and record keeping. A 24-hour Technician Training Certification and Certificate of Completion was the center piece of this training. Workshop schedule included group lecture, hands on activities and break-out sessions, where individuals had an opportunity to work in smaller groups with an instructor.

An extracurricular brochure on Arctic Contaminants for elementary and middle-school students is being prepared by RAIPON with support from ACAP and the Russian NGO Eco-Accord. This brochure will be approved by the Russian Ministry of Education for use in the Russian Public School system.

CLEANER PRODUCTION PROGRAM (RUSSIA, NORWAY & USA)

The ACAP Cleaner Production Project at Norilsk Nickel Company was completed in 2005. This project focused on pollution prevention, energy efficiency, waste minimization and recycling, the major elements of Cleaner Production. A key objective of the Cleaner Production Program is sustainability.

A representative of Norilsk Nickel's Trans-Polar Division gave an update on the facilities follow-on experience with the Cleaner Production Program, initiated under ACAP. Norilsk Nickel self-funded five additional Cleaner Production training sessions and developed more than 377 environmental projects. The sixth session began in February 2008.

Implementation of Cleaner Production Projects became a part the following Norilsk

Nickel management activities:

- Technical improvements and reconstruction.
- Research and development.
- General reconstruction.

In comparison with the 1996 baseline, the following environmental results have been achieved:

- 50% reduction of solid waste, including dust.
- Recycling of 99% of the solid waste.
- 22% reduction of pollutant releases into the water.
- 90% of the waste water is now in the closed-cycle.

As a result of implementing the Cleaner Production program, Norilsk Nickel was awarded a certificate of compliance with international standards ISO 9001:2000 and ISO 14001:2004 in December 2005. In the same year, Norilsk Nickel and the Russian Cleaner Production and Sustainable development Center were awarded the Vernadsky Environmental Diploma by the Russian Duma.

Funding has been contributed by Norway, United States and Russia (Norilsk Nickel).

OTHER ACTIONS:

ACAP has developed draft Operating Guidelines consistent with Part IV of the Arctic Council Rules of Procedure, which were approved by the SAO's at the last Meeting in Svolvaer.