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Item 2 of the provisional agenda

**TECHNICAL INPUT FOR REVIEWING
THE 1998 PROTOCOL ON HEAVY METALS**

Report by the Chairman of the Task Force on Heavy Metals
prepared in cooperation with the secretariat

Introduction

1. This report reflects progress made by the Task Force on Heavy Metals at its first and second meetings, held in Berlin from 16 to 18 March 2005 and in Geneva from 16 to 17 June 2005 respectively. Information on the former Expert Group on Heavy Metals and scientific workshops on heavy metals are available at: <http://www.unece.org/env/tfhm/welcome.htm>.
2. Experts from Austria, Belgium, Bulgaria, Canada, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Hungary, Italy, the Netherlands, Norway, Poland, Russian Federation, Sweden, Switzerland, Ukraine, the United Kingdom, the United States and the European Community participated in at least one of the meetings. Representatives from the EMEP Meteorological Synthesizing Centre-East (MSC-E), the United Nations Environment Programme (UNEP), the Arctic Monitoring and Assessment Programme (AMAP),

Documents prepared under the auspices or at the request of the Executive Body for the Convention on Long-range Transboundary Air Pollution for GENERAL circulation should be considered provisional unless APPROVED by the Executive Body.

the European Chemical Industry Council (CEFIC), the International Cadmium Association (ICdA), the International Council on Mining and Minerals (ICMM) attended at least one of the meetings. A member of the secretariat was present at both meetings.

3. Mr. Dieter Jost (Germany) chaired both meetings.

I. PROGRESS ON THE WORK OF THE TASK FORCE

4. In accordance with its workplan (ECE/EB.AIR/83/Add.2, annex XIII, item 1.6), the Task Force focused on: the scheduled evaluations of emission limit values for existing chlor-alkali plants and for mercury-containing emissions from medical waste incineration; review of the sufficiency and effectiveness of the Protocol; annotated chapter headings for the technical components of the review of sufficiency and effectiveness; technical work to assess the extent to which a satisfactory basis exists for the application of an effects-based approach; and generic guidelines for the technical review of additional heavy metals, product control measures or product/product groups that may be proposed by Parties for inclusion in the Protocol.

5. In its work the Task Force took note of information provided on: the Netherlands Organisation for Applied Scientific (TNO) building and construction research project on the effectiveness of the Protocol on Heavy Metals and the Protocol on Persistent Organic Pollutants and costs of additional measures, a project planned to establish critical load maps for six heavy metals not presently covered by the Protocol; North American activities regarding heavy metals; mercury-containing products (Sweden); the UNEP Global Mercury Assessment Working Group; the European Commission's Mercury Strategy and its project on the estimation of willingness to pay to reduce the risks of exposure to heavy metals and on cost-benefit analysis for reducing heavy metals occurrence in Europe (ESPREME); activities of the Working Group on Effects and MSC-East; the International Cadmium Association and Eurochlor. Attention was drawn to relevant work by the Commission for the Protection of the Marine Environment of the North-East Atlantic (OSPARCOM) and the Arctic Monitoring and Assessment Programme (AMAP).

6. The Task Force agreed on its workplan for 2006 and submitted it to the Working Group on Strategies and Review (EB.AIR/WG.5/2005/11, item 1.5).

A. Technical inputs for the scheduled evaluations of emission limit values for existing chlor-alkali plants and mercury-containing emissions from medical waste incineration

7. The 1998 Protocol on Heavy Metals requires Parties to evaluate emission limit values (ELVs) for existing chlor-alkali plants and for mercury-containing emissions from medical waste incinerators (MWIs) within two years after the date of entry into force of the Protocol (annex V, paragraphs 19 and 23(c)), i.e. by December 2005, at the twenty-third session of the Executive

Body. The Task Force produced a summary of ELVs based on a report prepared by the French-German Institute for Environmental Research (IFARE) in cooperation with Germany. The report aimed to review Best Available Techniques (BAT) and ELVs for controlling emissions of heavy metals and their compounds from existing chlor-alkali plants and from MWIs. It is available at: http://www-iip.wiwi.uni-karlsruhe.de/forschung/emission_html/UNECE.htm.

8. Summaries of the evaluations of ELVs for the chlor-alkali industry and MWI were submitted to the Working Group on Strategies and Review at its thirty-sixth session. The Task Force amended these at its second meeting (annexes I and II).

B. Review of sufficiency and effectiveness of the Protocol

9. The Task Force recalled that the review of the sufficiency and effectiveness of the Protocol should take into account best available scientific information on the effects of depositions of heavy metals, assessment of technological developments and changing economic conditions.

10. The Task Force prepared technical elements for annotated chapter headings for the effectiveness and sufficiency review (annex III), pursuant to article 10 paragraph 3 of the Protocol and as reflected in Executive Body decision 2004/2. During the discussion of section D (Overview of emissions), some experts expressed the view that only the heavy metals in annex I to the Protocol should be covered.

11. The Task Force heard and discussed presentations on an effects-based approach during its first two meetings. These presentations were based inter alia on the work under the Working Group on Effects and EMEP including present and future emissions, present and future air quality and depositions, critical loads (or similar criteria), critical load maps, maps of exceedances and an assessment of emission reductions.

C. Generic guidelines and/or procedures for the technical review of additional heavy metals, product control measures or product/product groups that may be proposed by Parties for inclusion into annexes I, VI and VII to the Protocol

12. The Task Force prepared draft generic guidelines (annex IV), on the basis of Executive Body decision 1998/1 and the model used by the Task Force on Persistent Organic Pollutants. It noted that there was need for a transparent and clearly articulated process to ensure that interested entities had an adequate opportunity to provide information for any technical reviews of proposals for the addition of a heavy metal, a product control measure, or a product or product group to the Protocol.

II. CONCLUSIONS AND RECOMMENDATIONS FOR FURTHER WORK

13. The Task Force:

(a) Agreed that the output of its contributions to the review process would be a summary report, to be submitted to the Working Group on Strategies and Review at its thirty-eighth session in September 2006. The underlying information would be made available on the Internet;

(b) Thanked experts for their inputs on the summary documents on the scheduled evaluation of emission limit values for existing chlor-alkali plants (annex V, para. 19 of the Protocol) and for mercury-containing emissions from medical waste incineration (annex V, para 23(c) of the Protocol) and agreed to annex these to its report (annex I and annex II);

(c) Recognizing the work of the Working Group on Effects, EMEP and North American activities, agreed to continue the technical work required to assess the extent to which a satisfactory basis exists for the application of an effects-based approach;

(d) Thanked experts for their work on the annotated chapter headings for the sufficiency and effectiveness review (annex III) and agreed to submit the text to the Working Group on Strategies and Review;

(e) Agreed to submit the generic guidelines and/or procedures for technical review (annex IV) to the Working Group on Strategies and Review for its consideration.

Annex I

SUMMARY OF EMISSION LIMIT VALUES AND CONTROL FOR THE CHLOR-ALKALI INDUSTRY

1. The Protocol on Heavy Metals includes an emission limit value (ELV) for mercury for new chlor-alkali plants of 0.01 grams of mercury per metric tonne of chlorine production capacity (i.e. 0.01 g Hg/tonne Cl₂). However, no ELVs for mercury emissions from existing plants are specified in the Protocol. Instead, the Protocol requires Parties to evaluate ELVs for existing chlor-alkali plants within two years after the date of entry into force of the Protocol (annex V, paragraph 19).

2. Various process technologies are used for chlor-alkali production, including the mercury-cell technology, the mercury-free membrane technology, the asbestos diaphragm process, and non-asbestos diaphragm process. The selected technology has a major impact on the energy use and emissions from the operation. Existing chlor-alkali plants (or facilities) using the mercury cell process are an important source of mercury emissions. Moreover, mercury-cell technology is less energy efficient compared to membrane technology.

3. The best available techniques (BAT) for new plants for chlor-alkali production are considered to be both mercury-free membrane technology and non-asbestos diaphragm technology. For the existing mercury cell chlor-alkali operations, mercury emissions can be eliminated by converting to non-mercury technology. However, such conversions require significant capital investment and time, and waste issues need to be managed. Conversion is considered as BAT in the BREF document for chlor-alkali production under the IPPC Directive¹. The total phase-out of the mercury process for chlor-alkali production by the year 2010 was recommended by the Commission for the Protection of the Marine Environment of the North-East Atlantic (OSPARCOM) in its decision 90/3 of 14 June 1990, which was reviewed in 1999-2001 without any changes.

4. The use of mercury-cell technology has been declining in Europe and North America over the past few decades, as many such plants have shut down or been converted to non-mercury processes. Moreover, European and North American producers are committed to not building any new mercury-cell facilities.² In addition, North American and European regulations do not allow the construction of these facilities.

¹ Council Directive 96/61/EC (IPCC). Best reference (BREF) document on Best Available Technologies for chlor-alkali manufacturing, available at: <http://eippcb.jrc.es/pages/FActivities.htm>

² World Chlorine Council www.worldchlorine.org

5. With regard to ELVs for existing plants, legislation and regulations of the Parties to the

Protocol differ widely. Current ELVs in force range from 1 to 5 g Hg/tonne Cl_2 capacity for cell room exhaust air. In some countries, further ELVs for hydrogen gas, end boxes and mercury recovery units are specified. Additionally in Canada, the total amount of mercury released from one plant into ambient air from specified sources is limited to 1.68 kg per day. In the United States, regulations for these installations include ELVs for vents for hydrogen gas streams and end boxes, and require stringent work place standards to minimize emissions from cell-rooms. However, no specific ELV has been established for cell-rooms in the United States. The association of European chlorine producers (EuroChlor) has in place an ongoing voluntary commitment that no individual plant will exceed a total emission level of 1.5 g Hg/tonne Cl_2 by the end of 2007 unless there is a commitment that the plant will be converted to mercury-free technology by the end of 2010.

6. According to data from OSPARCOM, among 41 plants that use the mercury-cell process in western and northern Europe, the estimated range of emissions is 0.18 to 1.88 g Hg/tonne Cl_2 , with an average of about 1.0 g Hg/tonne Cl_2 . The best performing installations have total air emissions levels of between 0.2 – 0.5 g Hg/tonne Cl_2 as a yearly average.

7. ELVs and reported emission values of best performing installations are given in various units and for different parts of the chlor-alkali plant. Values are given in g Hg/tonne Cl_2 , kg/day and mg/Nm³, respectively, so that they are not directly comparable. Therefore, a comparison of the various values has to be made with care and can only be meaningful if data about production capacities of installations and exhaust gas volumes are also taken into account.

Table 1. Existing and proposed ELVs and reported BAT emission levels for mercury from existing chlor-alkali plants (g Hg/tonne Cl_2 capacity, unless otherwise stated)

Country/ Reference	Cell room	Hydrogen gas	End boxes	Retorts /Hg recovery	Remarks
Austria ¹	0.5				
BREF ²	0.2 – 0.3	<0.003	0.0003 – 0.01		
	0.2 – 0.5				including emissions to air, water and with products
Canada ³	5	0.1	0.1	0.1	ELV are non-competing
	1.68 kg/day				

Germany ⁴	1.0	n.a.	n.a.	n.a.	ELV also comprises emissions from end boxes
Netherlands ⁵	0.5				
OSPARCOM ⁶	<2.0 (0.18 – 1.88)				with an average of 1.0
United Kingdom ⁷	(>1.0)	n.a.	n.a.	n.a.	
United States ⁸	(1.3 kg/day)	0.076		23 mg/Nm ³ (oven type) 4 mg/Nm ³ (non-oven type)	without end-box ventilation system
		0.033			
Czech Republic ⁹	2				Existing installations
France ¹⁰	0.8				Mean reported emission levels for the 7 French chlor-alkali plants using the Hg cell process

¹ELV as proposed by Austria.

²Values reflect emission levels of best performing installations. These levels range from the lowest feasible to the highest acceptable values.

³ELVs are given as g/day per 1,000 kg of rated chlorine capacity, which is equivalent to g/tonne Cl₂ capacity; only one facility in Canada.

⁴There is a higher ELV if alkali lye and dithionite or alcoholates are produced simultaneously in one facility that has not been taken into account.

⁵ELV as proposed by the Netherlands.

⁶Reported emissions from facilities of the Contracting Parties to the Convention on the Protection of the Marine Environment of the North-East Atlantic (OSPAR).

⁷It was commented that the necessary reduction measures to achieve the 1 g/tonne Hg limit may not be a cost-effective solution and thus not BAT.

⁸United States regulation includes ELVs for hydrogen gas vents and end boxes, as shown. For cell rooms, no numerical ELV is specified; however, stringent workplace standards are required to minimize emissions from cell rooms or, as an alternative, facilities can implement a cell room monitoring program. Cell room ventilation emissions of below 1.3 kg/d may be assumed when the operator carries out the work practice standards. U.S. EPA plans to conduct a detailed study in 2005-07 to measure mercury emissions from cell-rooms at 2 facilities to gain a better understanding of these emissions.

⁹ELV are given as g Hg/tonne Cl₂ annual production, which is derived from the sum of the individual average monthly Cl₂ production figures in the Czech Republic. The mercury emissions from existing plants in the Czech Republic are supposed to be less than 1 g Hg/tonne Cl₂ capacity by the year 2007.

¹⁰French authorities prefer an impact approach rather than an ELV approach. Impact studies were carried out in 2002-2003 at 7 French plants where air Hg emissions were < 1 g Hg/tonne Cl₂ (capacity production). It was concluded that there was no significant impact on health and on the environment locally if air Hg emissions were < 1 g Hg/tonne Cl₂ (capacity production).

Annex II

SUMMARY OF EMISSION LIMIT VALUES AND CONTROL FOR MEDICAL WASTE INCINERATION

1. The Protocol on Heavy Metals requires Parties to evaluate emission limit values (ELVs) for mercury-containing emissions from medical waste incinerators (MWIs) within two years after the date of entry into force of the Protocol. The Protocol entered into force on 29 December 2003.
2. Mercury is highly volatile and therefore almost completely passes into the flue-gas stream during combustion processes. The Protocol does not yet contain BAT suggestions for medical waste incineration.
3. The only relevant primary techniques for preventing emissions of mercury into the air are those that prevent or control, if possible, the inclusion of mercury in waste. In some countries mercury-containing components are separated out of the solid waste stream and managed or recycled properly. Removing mercury from the waste stream before it enters the incinerator is much more cost-effective than capturing mercury later from flue gases using emissions control devices.
4. Mercury emissions from MWIs occur in two main forms: elemental mercury and ionic mercury. Elemental mercury is not readily removed by conventional emission control devices (such as electrostatic precipitators, fabric filters, scrubbers). However, ionic mercury is captured relatively well by some of these devices. Also, some mercury-specific technologies can capture elemental mercury (such as sorbent injection). Therefore, in order for elemental mercury to be effectively controlled, it either has to be transformed into ionic mercury (which can then be removed by a suitable conventional device) or mercury-specific capture technologies must be applied. In the presence of chloride ions and at combustion chamber temperatures above 850°C a considerable part of mercury is present as HgCl₂ in municipal waste incinerators.
5. Most current ELVs in force for MWIs range from 0.02 to 0.05 mg/Nm³ for non-continuous monitoring. For continuous monitoring, ELVs are in the order of 0.05 mg/Nm³ for the half-hour average and 0.03 mg/Nm³ for the daily average. The related BAT associated emission levels for Hg and its compounds from the European Commission BAT references (BREF)³ are 0.001-0.03 mg/Nm³ (half hour average), 0.001-0.02 mg/Nm³ (daily average) and 0.001- 0.05 mg/Nm³ for non-continuous samples.

³ Council Directive 96/61/EC (IPCC). Final draft: best reference (BREF) document on the Best Available Techniques for waste incineration, available at: <http://eippcb.jrc.es/pages/FActivities.htm>

6. Most Parties require discontinuous monitoring of mercury emissions only, while some consider continuous monitoring as BAT; proven systems for continuous measurements of mercury are available on the market. Thus, the disparity in monitoring approaches (continuous versus non-continuous) as well as the various time spans for which the ELVs are given (half-hour to yearly average) should be considered when interpreting the different ELVs.

7. In some countries no differentiation is made between municipal, hazardous and clinical waste in terms of applied techniques or achievable emission limits (as all types of waste are often incinerated in the same installation). Other countries have specific regulations for medical waste incineration. However, all ELVs listed in the table are applicable to medical waste incineration.

Table 2. Reported BAT emission levels and emission limit values for mercury (in mg/Nm³) for medical waste incineration

(All values are expressed for mercury and its compounds, expressed as mercury, for standard conditions and corrected to 11% oxygen in the exhaust gas, unless otherwise stated.)

Country/ Reference	30 min	Daily av.	Annual av	Non-continuous samples	Remarks
BREF ¹	0.001-0.03	0.001- 0.02		<0.05	
Austria ²	0.05	0.05	n.a.	0.05	
Canada ³	n.a.	n.a.	n.a.	0.02	Value expressed in mg/Rm ³ (25°C)
Germany ⁴	0.05	0.03	n.a.	n.a.	
European Union ⁵	n.a.	n.a.	n.a.	0.05	
Netherlands ⁶	n.a.	n.a.	n.a.	0.03	
United Kingdom ⁷	n.a.	n.a.	n.a.	(0.05)	
United States ⁸				0.39	Values expressed in mg/dscm; alternatively 85% emission reduction

¹BAT associated emission levels. Status: final draft (as of 27 June 2005, endorsed by IPPC Information Exchange forum, awaiting formal adoption by the Commission). Values reflect emission levels of best performing installations. These levels range from the lowest feasible to the highest acceptable values.

²Continuous measurement is prescribed. A common ELV for the incineration of municipal, hazardous and clinical waste is prescribed.

³Canada-wide standard: Each signatory is required to develop an implementation plan which describes what actions will be taken to implement the CWS.

⁴ELV identical for the incineration of municipal, hazardous and clinical waste; specific requirements for the co-incineration of waste.

⁵ELV identical for the incineration of municipal, hazardous and clinical waste; specific requirements for the co-incineration of waste. Average value over the sample period of a minimum of 30 minutes and a maximum of 8 hours.

⁶Agreement on the proposed ELV in the First Draft Report; value refers to average of one-hour measurements as specified in annex V to the Protocol.

⁷Reference is made to the ELV as given in the Waste Incineration Directive 2000/76/EC.

⁸The United States regulation for MWIs (published in 1997) includes an ELV of 0.55 mg per dry standard cubic meter (mg/dscm) at 7% oxygen, which corresponds to 0.39 mg/dscm at 11% oxygen. The United States Environmental Protection Agency is reviewing this standard to, among other things, determine whether a revision is necessary and appropriate.

Annex III

**DRAFT ANNOTATED CHAPTER HEADINGS FOR THE TECHNICAL COMPONENTS
OF THE REVIEW OF THE SUFFICIENCY AND EFFECTIVENESS OF THE
OBLIGATIONS SET OUT IN THE 1998 PROTOCOL ON HEAVY METALS**

Introduction

1. The Task Force on Heavy Metals prepared annotated chapter headings of the technical components for review of the sufficiency and effectiveness of the obligations set out in the Protocol on Heavy Metals, for comment and approval by the Working Group on Strategies and Review. The Task Force is expected to submit the technical elements of the review to the Working Group at its thirty-eighth session in 2006.
2. The technical elements for the review will examine whether the Protocol's basic obligations (article 3) concerning control of emissions of heavy metals have been fulfilled. The review will focus on obligations related to the heavy metals currently listed in annex I to the Protocol. It could also include information on other heavy metals whose effects due to long-range atmospheric transport may cause concern.
3. As well as an overview of emissions, the review will take into account the following elements identified in article 10, paragraph 3, of the Protocol:
 - (a) The best available scientific information on the effects of the deposition of heavy metals;
 - (b) Assessments of technological developments;
 - (c) Changing economic conditions;
 - (d) An overview of emissions.

**I. ANNOTATED CHAPTER HEADINGS FOR THE ELEMENTS OF THE
SUFFICIENCY AND EFFECTIVENESS REVIEW**

A. Best available scientific information on the effects of the deposition of heavy metals

4. Article 10, para. 3(a) of the Protocol states that the review should take into account the best available scientific information on the effects of the deposition of heavy metals. This chapter will examine

available information forming the scientific basis for an assessment of the sufficiency and effectiveness of the Protocol. It will include the best available information on atmospheric transport and deposition and levels in environmental media and biota where effects may be anticipated. Consideration of effects will include a simple comparison of air concentrations, deposition levels and levels in media and biota with various available and relevant indicators of significance (e.g. lowest observed effect levels for similar species, tolerable daily intake levels for humans) as appropriate. The effects of deposition can be evaluated from measured and modelled data.

5. In addition to deposition data, the chapter will include information on ambient concentrations, effects and their trends. It will provide a synthesis of best available information. The review will use existing international review documents and peer-reviewed material from the published scientific literature. Sources will include, inter alia, reports from EMEP centres, the Working Group on Effects, UNEP's Global Mercury Assessment and the Arctic Monitoring Assessment Programme (AMAP). Proposed sub-chapter headings are as below.

6. Atmospheric transport, ambient concentrations and deposition of heavy metals. EMEP MSC-East, Chemical Coordinating Centre (CCC), Environment Canada, United States Environmental Protection Agency and others will provide information for various timeframes (e.g. 1990, 1995, 2002, or other years) on:

- (a) Summaries of estimated air concentrations and deposition rates based on modelling;
- (b) Summaries of measured air concentration and deposition data based on monitoring and measurement studies and focusing on aspects of long-range transport;
- (c) Comparisons of modelling results with measurement data. A summary of the atmospheric depositions and ambient concentrations of heavy metals, including trends using the available information, together with a discussion of robustness of modelling and monitoring results, important data gaps (temporal and geographic) and uncertainties.

7. Observed and modelled concentrations and temporal trends of heavy metals in environmental media (soils, waters) and biota (plants, invertebrates, fish, birds, humans and other mammals) and comparison, as appropriate, with effects indicators of significance. Environment Canada, United States Environmental Protection Agency, UNEP and the Working Group on Effects will provide information.

8. Results of modelling and mapping of critical loads of lead, cadmium and mercury and

critical concentrations of mercury in precipitation and their exceedances for Europe. The Working Group on Effects and MSC-East will provide a summary of, and reference to, documented knowledge on methodologies, data sources and results.

9. Summary and concluding remarks. This sub-chapter will be completed on the basis of the information in the preceding sub-chapters.

B. Assessments of technological developments

10. This chapter will provide a synthesis of information on technological developments related to basic obligations in article 3, in order to document how BAT and other measures have improved since the Protocol was adopted. Proposed sub-chapters are as below.

1. BAT and limit values

11. The Task Force will review technological developments with regard to emissions from stationary sources. The review will be limited to the heavy metals listed in annex I to the Protocol. If appropriate, additional information on emissions and abatement of particulate matter will be included. Information will be compiled from the report, "Materials concerning the Protocol on Heavy Metals to the Convention on Long-range Transboundary Air Pollution", prepared by the French-German Institute for Environmental Research as a contribution to the former Expert Group on Heavy Metals, as well as from additional data provided to the Task Force. In this sub-chapter there will be a brief discussion on the correspondence between the stationary source categories in annex II to the Protocol and the classification of sectors in annex III. This sub-chapter will have two sections: technological developments in BAT and in limit values, as below.

12. Technological developments in best available techniques (BAT) (art. 3, paras. 2 (a) and (c)). This section of the sub-chapter will include an overview of recent BAT developments in relation to annex III to the Protocol for both new and existing stationary sources and related costs. The review will compile information on technological developments for each sector according to the structure of annex III. The work will be based on the European Reference Documents on Best Available Techniques (BREF), information from the United States Environmental Protection Agency, Environment Canada, international reports and regulations on heavy metal abatement and other relevant information. A review of alternative reduction strategies could also be considered. This section will be approximately two pages.

13. Technological developments in limit values (art. 3, paras. 2 (b) and (d)). This section of the sub-chapter will be a compilation of current international and national limit values in relation to annex V to the Protocol for both new and existing installations. It will include a compilation of

current ELVs for both new and existing installations for source categories identified in annex II, which are not covered in annex V, and for heavy metals indicated in annex I, for which no limit value is specified in annex V. Current ELVs of Parties to the Convention as well as maximum achievable emission reductions and current levels will be considered. This section will be approximately two pages.

2. Products and product groups

14. This sub-chapter will provide a synthesis of information on technological developments related to basic obligations in article 3, paras. 3 and 4 to show how product measures have improved since the Protocol was adopted. The sub-chapter will have two sections: product control measures and product management measures, as below.

(a) Product control measures in annex VI

15. The obligation related to annex VI is found in Article 3, para. 3: "Each Party shall apply product control measures in accordance with the conditions and timescales specified in annex VI". Product control measures relate to (a) the lead content of marketed petrol and (b) the mercury content in alkaline manganese batteries. The Task Force will review available information on technological developments relative to the product control measures in annex VI. Sources of information may include replies to the questionnaire on strategies and policies for air pollution abatement (2004 and possibly 2006) and other relevant information submitted by Parties or others.

(b) Product management measures in annex VII

16. The obligation related to annex VII is found in article 3, para. 4: "Each Party should consider applying additional product management measures, taking into consideration annex VII". Annex VII provides guidance to Parties on product management measures, including substitution and recycling programmes. Examples will be given on regulatory and voluntary actions taken by countries. The section on product management measures will have three sub-sections: mercury, cadmium and lead and development of alternatives and management strategies, as below.

(i) Mercury

17. Annex VII, para. 3, lists products containing mercury that are the subject of regulatory or voluntary action by at least one Party. The Task Force will review available information on technological developments relative to the product management measures in annex VII. Information may include replies to the questionnaire on strategies and policies for air pollution abatement (2004 and possibly 2006), as well as other information. In order to gather additional

information, a questionnaire on products approved by the Task Force at its second meeting is proposed for circulation to Parties following the thirty-seventh session of the Working Group on Strategies and Review. The questionnaire, in table form, invites Parties to provide information on actions taken and planned for mercury-containing products or product groups listed and not listed in annex VII (see table 1).

(ii) Cadmium and lead

18. Parties will be invited to provide information on substitution and other management measures for products containing cadmium and/or lead as described in annex VII to the Protocol, which are not covered by the questionnaire on strategies and policies for air pollution abatement.

(iii) Development of alternatives and management strategies

19. To review technical developments and improvements, Parties will be invited to submit information on available alternatives and management strategies including: a brief description of alternative products or measures, costs, associated risks to human health and environment, energy efficiency and other factors, if relevant and current standards, limit values, etc., for mercury, cadmium and lead. In addition, information could be gathered from various studies, such as the Global Mercury Assessment (UNEP, 2002).

C. Changing economic conditions

20. The Task Force invites the secretariat to prepare information on requests from countries with economies in transition for exemptions under article 3, para. 6 and annex VI, para. 5.

D. Overview of emissions

21. Data required for the review of the Protocol (2004 emission data) will be available in 2006. The Task Force invites MSC-East to prepare a synthesis of the best available emission data, including 1990 and more recent years, and to evaluate trends. The overview of emissions should address the three heavy metals listed in annex I to the Protocol. [An overview of emissions of a further six “metals” (arsenic, chromium, copper, nickel, selenium and zinc) where emission data are reported to EMEP may also be included. This would give insight into the potential benefits for these six “metals”]

Table 1. Questionnaire on product management measures for mercury-containing products

Country:				Estimate of amount of mercury sold or used* (kg)		Estimate of mercury emissions (kg)	
Mercury-containing product/ product group	Actions taken (please state if regulatory or voluntary)	Actions planned (please state if regulatory or voluntary)	Results from efficiency review of measure, if available (collection rates, etc.).	1995	2004	1995	2004
Electrical components							
Measuring devices							
Fluorescent lamps							
Dental amalgam							
Pesticides							
Paint							
Batteries (other than those covered by annex VI)							
Other products							

* To facilitate the comparison of data, please indicate the source (e.g. reports from industry, official estimates, amounts sold or used, etc.). Estimates of amounts of mercury sold or used do not imply equivalence with mercury emissions.

Annex IV**DRAFT GENERIC GUIDELINES FOR THE TECHNICAL REVIEW OF PROPOSALS FOR
ADDITIONAL METALS, PRODUCT MEASURES, OR PRODUCT/PRODUCT GROUPS
THAT MAY BE PROPOSED BY PARTIES FOR INCLUSION INTO ANNEXES I, VI, AND
VII TO THE PROTOCOL****Introduction**

1. Article 13 of the Protocol on Heavy Metals sets forth procedures for Parties to amend the Protocol by adding heavy metals, product control measures or product/product groups to annexes I, VI, or VII, respectively. It refers to Executive Body decision 1998/1 on the criteria and procedures for adding heavy metals and products to the Protocol. The decision details the information the proposal must contain, and provides a framework for reviewing it. The Task Force on Heavy Metals will prepare technical reviews of a proposal when requested to do so by the Executive Body, and will present relevant documentation on it to the Working Group on Strategies and Review (Executive Body decision 2004/2, para. 4(c)).

A. Objective and intent

2. These guidelines provide generic guidance for the Task Force when undertaking technical reviews of a proposal (ECE/EB.AIR/83/Add.2, item 1.6 (e)). They are intended to provide a simple framework to achieve uniformity and consistency in expeditious reviews and to reduce the level of uncertainty for all involved (i.e. the Party making the proposal, the Task Force and its reviewers, the Working Group on Strategies and Review, the Parties to the Protocol and the Executive Body).

B. Procedure for review

3. Upon receipt of a proposal in accordance with article 13 of the Protocol, the Executive Body will decide whether the information in the proposal is deemed acceptable in accordance with Executive Body Decision 1998/1. If so, the Task Force will then simultaneously begin a two-track review.

4. Track A will involve the review of elements of the proposal and other information that may have been forwarded by the Executive Body, which are relevant to a decision being made as to whether or not the heavy metal, product measure, product or product group should be added to the relevant annex of the protocol. Track A will involve the evaluation of the information, considering

the guidance provided in Executive Body Decision 1998/1, paragraphs 5(a)(i)-(iii), 5(b)(i) and (ii) and 5(c)(i) and (iv) as appropriate.

5. Track B will involve the review of those elements of the proposal and other information that may have been forwarded by the Executive Body, which are related to the development of a strategy for the heavy metal, product control measure, product or product group under consideration. Track B will involve the evaluation of the information considering the guidance provided in Executive Body decision 1998/1, paragraph 5 not considered in track A and relevant to a management strategy.

6. The Task Force may set up small ad hoc peer review teams of experts to prepare draft reviews for its consideration. The Task Force will decide on the participation in such teams. They will consist of well-known experts from Parties to the Convention, preferably Parties to the Protocol, and should not include experts who participated in the preparation of the proposal. Teams for track A reviews would preferably consist of three experts. It is expected that teams would work mainly remotely although meetings may be necessary. Review teams would be disbanded as soon as they had completed their task(s).

7. The Task Force will discuss the draft reviews prepared by the review teams and prepare reports for the Working Group on Strategies and Review.

C. Nature of the task force reviews

8. The review and assessment of the proposal will provide critical scientific evaluation of its technical content against each of the requirements outlined in Executive Body decision 1998/1 and advise on the degree to which the information provided supports the proposal.

9. The review will be transparent and will include a critical evaluation of such aspects as availability, reliability, completeness and relevance of the information and references.

10. In the case of track B reviews, the Task Force will respond to any additional requests from the Working Group on Strategies and Review for technical advice.

D. Time schedule and reporting

11. Following a decision by the Parties to the Protocol, at a session of the Executive Body, that a submitted risk profile is deemed acceptable and that the Task Force is requested to undertake a technical review, the Task Force will:

(a) Simultaneously initiate track A and B reviews without delay;

(b) Report in writing to the Working Group on Strategies and Review on its work related to track A, as specified in the annual work-plan of the Executive Body. If so instructed, the Task Force will report on its track A review at the meeting of the Working Group on Strategies and Review that immediately precedes the next session of the Executive Body. This will enable the Parties to the Protocol to decide on the need to further consider the proposal at that time, should they wish to do so;

(c) Continue with its track B review (should the Parties to the Protocol decide to further consider the proposal), and provide the necessary review information in writing to the Working Group on Strategies and Review according to the work-plan of the Executive Body. This will facilitate the development of a strategy and provide Parties to the Protocol with the necessary information for decision-making at sessions of the Executive Body. If the Parties to the Protocol meeting at a session of the Executive Body decide not to further consider the heavy metal, product control measure, product or product group, the Task Force will terminate its work on the proposal.

12. All reports will be prepared and approved by the Task Force in accordance with the provisions contained in Executive Body decision 2004/2.