

14th Meeting of the Persistent Organic Pollutants Review Committee (POPRC-14) of the Stockholm Convention on Persistent Organic Pollutants: 17-21 September 2018

The fourteenth meeting of the Persistent Organic Pollutants Review Committee (POPRC-14) to the Stockholm Convention on Persistent Organic Pollutants (POPs) took place from 17-21 September 2018 in Rome, Italy. Approximately 180 participants attended the meeting, including POPRC members and observers from governments, industry, and civil society.

POPRC-14 considered:

- the draft risk profile on perfluorohexane sulfonic acid (PFHxS), its salts, and related compounds;
- a recommendation to the Conference of the Parties (COP) on pentadecafluorooctanoic acid (PFOA), its salts, and related compounds; and
- the process for the evaluation of perfluorooctane sulfonic acid (PFOS), its salts, and perfluorooctane sulfonyl fluoride (PFOSF) pursuant to Part III of Annex B to the Convention, which requires parties to review the continued need for listed substances for various acceptable purposes and specific exemptions on the basis of available scientific, technical, environmental, and economic information.

Delegates also discussed the report on activities for effective participation in the work of the Committee and considered the outlines for the risk profiles and risk management evaluations, with the aim of determining whether they could be presented more effectively to parties and observers.

POPRC-14 adopted three decisions, including:

- a risk profile on PFHxS, its salts, and related compounds, which concludes that these substances are likely, as a result of long-range environmental transport (LRET), to lead to significant adverse effects on human health and the environment such that global action is warranted;
- a decision to recommend listing PFOA, its salts, and related compounds in Annex A of the Convention (elimination), with specific exemptions for some uses, including fire-fighting foams; and
- a decision on PFOS, its salts, and PFOSF that, *inter alia*, recommends to the COP that some uses permitted under the Convention should be eliminated, due to the availability of safer alternatives for these uses.

A Brief History of the Stockholm Convention and the POPRC

During the 1960s and 1970s, the use of chemicals and pesticides in industry and agriculture increased dramatically.

In particular, a category of chemicals known as POPs attracted international attention due to a growing body of scientific evidence indicating that exposure to very low doses of POPs can lead to cancer, damage to the central and peripheral nervous systems, diseases of the immune system, reproductive disorders, and interference with normal infant and child development.

POPs are chemical substances that persist in the environment, bioaccumulate in living organisms, and can have adverse effects on human health and the environment. With further evidence of the LRET of these substances to regions where they have never been used or produced, and the consequent threats they pose to the global environment, the international community called for urgent global action to reduce and eliminate their release into the environment.

The negotiations for the Stockholm Convention were launched by the UN Environment Programme's Governing Council in February 1997. The Stockholm Convention was adopted in May 2001, entered into force on 17 May 2004, and currently has 182 parties. The Convention can list chemicals in three annexes:

- Annex A contains chemicals to be eliminated; Annex B contains chemicals to be restricted; and Annex C calls for the minimization of unintentional releases of listed chemicals. When adopted in 2001, 12 POPs were listed in these annexes. These POPs include
 - pesticides: aldrin, chlordane, DDT, dieldrin, endrin, heptachlor, mirex, and toxaphene;

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- industrial chemicals: hexachlorobenzene and polychlorinated biphenyls (PCBs); and
- unintentionally produced POPs: dioxins and furans.

The role of the POPRC: The Stockholm Convention specifies a procedure to identify and list additional POPs. At the first meeting of the Conference of the Parties (COP-1), held in Punta del Este, Uruguay, from 2-6 May 2005, the POPRC was established to consider additional substances nominated for listing under the Convention.

The Committee is comprised of 31 experts nominated by parties from the five UN regional groups and reviews nominated chemicals in three stages. The Committee first determines whether the substance fulfills the screening criteria detailed in Annex D of the Convention, relating to the chemical's persistence, bioaccumulation, potential for LRET, and adverse effects on human health or the environment. If a substance is deemed to fulfill these requirements, the Committee then drafts a risk profile according to Annex E to evaluate whether the substance is likely, as a result of LRET, to lead to significant adverse human health and/or environmental effects and therefore warrants global action. Finally, if the POPRC finds that global action is warranted, it develops a risk management evaluation according to Annex F, reflecting socio-economic considerations associated with possible control measures. Based on this, the POPRC decides whether to recommend that the COP list the substance under Annex A (elimination), B (restriction) and/or C (minimize unintentional releases) to the Convention.

The POPRC has met annually since its establishment.

Chemicals reviewed in the POPRC process

The first eight meetings of the POPRC were held in Geneva, Switzerland. Subsequent meetings were held in Rome, Italy. To date, the COP has listed all POPs recommended by the POPRC.

POPRC-1 to -3: The first, second, and third meetings of the POPRC met between 2005 and 2007. During this time, the POPRC recommended that the COP consider listing the following POPs under Annexes A, B, and/or C: lindane; chlordecone; hexabromobiphenyl (HBB); commercial pentabromodiphenyl ether (c-pentaBDE); and PFOS, its salts, and PFOSF. At POPRC-2 the Committee also agreed to draft a draft risk profile for short-chain chlorinated paraffins (SCCPs), an issue that would return to the POPRC's agenda several times before the Committee decided to recommend it for listing at its 12th meeting.

POPRC-4: This meeting convened from 13-17 October 2008. The Committee approved the risk management evaluations of four chemicals and recommended that the COP consider listing under Annexes A, B, and/or C: commercial octabromodiphenyl ether (c-octaBDE), pentachlorobenzene (PeCB), alphaHCH and betaHCH. POPRC-4 also evaluated a proposal to list endosulfan under the Convention and agreed, by majority vote, that it met the Annex D screening criteria.

POPRC-5: At this meeting in 2009 the Committee agreed that HBCD meets the Annex D criteria for listing and that a draft risk profile should be prepared. A draft risk profile for endosulfan was considered and, by a majority vote, the Committee decided to move endosulfan to the Annex F phase, while inviting parties to submit additional information on adverse effects on human health.

POPRC-6: POPRC-6 in 2010 adopted the risk profile for HBCD. The POPRC also agreed, by a majority vote, to adopt the risk management evaluation for endosulfan and recommend listing the substance in Annex A with exemptions.

POPRC-7: At its 2011 meeting the Committee addressed several issues, including: advancing chlorinated naphthalenes (CNs) and hexachlorobutadiene (HCBD) to the risk

profile stage; recommending that parties consider listing hexabromocyclododecane (HBCD) in Annexes A, B, and/or C of the Convention. For the first time, the Committee considered alternatives to a POP, with assessment of alternatives to PFOS in open applications, DDT, and endosulfan; and the impact of climate change on POPs.

POPRC-8: In 2012 the Committee adopted 12 decisions, including on: advancing pentachlorophenol (PCP), its salts and esters to the risk profile stage of review; advancing CNs and HBCD to the risk management evaluation stage; and amending POPRC-7's decision on HBCD to recommend that parties consider listing it in Annex A with specific exemptions.

POPRC-9: POPRC-9 in 2013 adopted nine decisions, including on: the commercial mixture of decabromodiphenyl ether (c-decaBDE); PCP, its salts and esters; CNs; HBCD; guidance on alternatives to PFOS, its salts, PFOSF and their related chemicals; and the process for evaluation of PFOS, its salts and PFOSF for acceptable uses.

POPRC-10: At this meeting in 2014, the Committee adopted decisions including, *inter alia*, that: dicofol meets the Annex D criteria; c-decaBDE should move to the risk management evaluation stage; and a recommendation should be made to COP-7 for PCP, its salts and esters to be listed in Annex A to the Convention with specific exemptions for the production and use of PCP for utility poles and cross-arms. The Committee also adopted a decision on alternatives to PFOS, its salts and PFOSF.

POPRC-11: At this meeting in 2015, the Committee adopted eight decisions, including a decision to adopt the draft risk profile of SCCPs, which had been under review by the POPRC for nine years. The POPRC also decided, *inter alia*, that PFOA, its salts, and PFOA-related compounds meet the Annex D screening criteria, and adopted the draft risk management evaluation on decaBDE. The Committee deferred its decision on a draft risk profile of dicofol to POPRC-12.

POPRC-12: At its 2016 meeting the Committee adopted six decisions, including on SCCPs; dicofol; PFOA, its salts and PFOA-related compounds; HBCD; decaBDE; and guidance on alternatives to PFOS and its related chemicals.

POPRC-13: The Committee decided in 2017 to recommend listing the pesticide dicofol in Annex A to the Convention, and to recommend listing of PFOA, its salts, and related compounds in Annex A or B.

POPRC-14 Report

POPRC Chair Estefânia Gastaldello Moreira (Brazil) opened the fourteenth meeting of POPRC on Monday, 17 September 2018.

Recalling that 16 of the 28 chemicals listed in the Stockholm Convention were reviewed by the POPRC, Rolph Payet, Executive Secretary of the Basel, Rotterdam, and Stockholm (BRS) Conventions, highlighted decreasing concentrations of many of the POPs listed in the Convention. He underscored the complexity and challenges of the issues under consideration at POPRC-14, and said that this is part of the Convention's growth.

The Committee then adopted its agenda and organization of work (UNEP/POPS/POPRC.14/1 and Add.1, INF/1 and INF/2).

Rotation of the Membership

On Monday, the Secretariat introduced the rotation of membership (UNEP/POPS/POPRC.14/INF/3) and noted that Chair Gastaldello Moreira would continue as Chair and Svitlana Sukhorebra (Ukraine) would serve as Vice-Chair and Rapporteur.

The current POPRC members are: Austria, Belarus, Brazil, Canada, China, Costa Rica, Denmark, eSwatini, Ghana, India,

Indonesia, Iran, Jamaica, Japan, Kenya, Lesotho, Luxembourg, Mali, Morocco, the Netherlands, Nepal, New Zealand, Pakistan, Peru, Poland, Suriname, Switzerland, Togo, Tunisia, Ukraine, and Yemen.

Technical Work

Consideration of the draft risk profile on PFHxS, its salts and related compounds: On Monday, the Secretariat introduced the documents on PFHxS, its salts, and related compounds (UNEP/POPS/POPRC.14/2, INF/4 and INF/5).

Peter Dawson (New Zealand), Chair of the intersessional working group, presented the draft risk profile, noting, *inter alia*, that these substances are used in similar applications to PFOS, including in production of textiles, leather making, metal plating, and as polishing agents. He said that the substances are ubiquitous in the environment, with the highest levels found in urban and industrial areas, and cited evidence of increasing levels in Arctic air and top predators, as well as a long half-life in humans. Dawson said that the intersessional working group had concluded that these substances are likely, as a result of their LRET, to lead to adverse effects on human health and the environment such that global action is warranted.

In the ensuing discussion, China, with Indonesia, called for more information on what the specific PFHxS-related substances are. He highlighted uncertainties related to the methods of analyzing PFHxS in the field, including uncertainty related to whether there could be contamination on the researchers' gear and whether PFHxS contamination is due to LRET. He queried the estimated projected consumption of PFHxS in China.

Noting that the production values did not seem to match contamination values, Austria expressed concern that a major source of PFHxS might not have been included in the draft risk profile.

The Netherlands requested more information on the main sources of PFHxS and called for serum data as proof of the data on its half-life in humans. Ghana expressed concern about the unexpectedly high levels of per- and polyfluoroalkyl substances (PFAS) in drinking water in some developing countries.

Luxembourg noted that definitive conclusions on effects on human health are difficult to reach, pointing to an EU evaluation of PFOS and PFOA in which effects similar to those of PFHxS exposure were observed. Indonesia called for more information on unintentional production. Switzerland, Belarus, an observer from the US, and others supported the draft risk profile, calling for further discussion in a contact group.

The International POPs Elimination Network (IPEN) underlined that PFHxS is globally distributed, bioaccumulates, causes significant health effects, and has a long half-life, and urged the Committee to agree that the Annex E criteria are met.

An observer from the UK expressed concern that there was a lack of analysis of the reliability and validity of the data on toxicity and ecotoxicity in the draft risk profile.

The Inuit Circumpolar Council reported the effects of PFHxS and PFOA on the Inuit because of their presence in traditional foods, and urged banning the substances as soon as possible.

An observer from the Russian Federation suggested there is a lack of both scientific data and accessible alternatives for PFHxS, and called for further work before the draft risk profile is adopted.

Citing discussions on sources, toxicity data, and a lack of information on related chemicals, Chair Gastaldello Moreira suggested, and the Committee agreed, to establish a contact group, to be chaired by Peter Dawson (New Zealand), to revise the draft risk profile and prepare a draft decision.

The contact group met on Monday, Tuesday, and Wednesday. On Friday in plenary, Dawson outlined the draft decision on PFHxS and revised draft risk profile, noting that the group had achieved consensus on all points in the document, including the definition of the substances, and had concluded that PFHxS is likely, as result of LRET, to lead to significant adverse effects on human health and the environment such that global action is warranted.

Ghana, Kenya, and the Netherlands expressed support for the work and conclusions of the contact group. Luxembourg suggested that the Secretariat could include in its request for further information from stakeholders a list of PFHxS-related substances to clarify what information would be useful for the next stage of the Committee's review.

An observer from the UK suggested that assessing the validity and reliability of the ecotoxicity data in the draft risk profile was a "generic issue" that could be considered more broadly.

POPRC-14 agreed to the text in the risk profile (UNEP/POPS/POPRC.14/CRP.3) and adopted the draft decision.

Final Decision: In the final decision (UNEP/POPS/POPRC.14/CRP.2), the POPRC:

- adopts the risk profile for PFHxS (CAS No: 355 46-4, PFHxS), its salts, and related compounds;
- decides that PFHxS, its salts, and related compounds are likely, as a result of their LRET, to lead to significant adverse human health and environmental effects such that global action is warranted, and to establish an intersessional working group to prepare a risk management evaluation that includes an analysis of possible control measures; and
- invites parties and observers to submit to the Secretariat the information specified in Annex F (information on socio-economic considerations) before 26 November 2018.

Consideration of a recommendation to the COP on PFOA, its salts, and related compounds: On Monday, the Secretariat introduced the documents related to consideration of a recommendation to the COP on PFOA, its salts, and related compounds (UNEP/POPS/POPRC.14/3, INF/6 and INF/7).

Chair Gastaldello Moreira reminded the Committee that POPRC-13 had adopted the risk management evaluation and decided to recommend that the COP consider listing PFOA, its salts, and related compounds in Annex A or B to the Convention, with specific exemptions. She said the task for POPRC-14 was to strengthen this recommendation based on an assessment of additional information submitted intersessionally by parties and observers. She noted that POPRC-13 did not have sufficient information on seven applications that could potentially be listed in Annex C due to unintentional releases.

Rameshwar Adhikari (Nepal), Chair of the intersessional working group, presented the addendum to the risk management evaluation, explaining where exemptions might be considered for applications, including in the automotive industry, membranes, medical devices, photoimaging, fire-fighting foams, and as an isolated intermediate. He highlighted the group's conclusion that the COP should consider listing and specifying the related control measures of PFOA, its salts, and related compounds in Annex A, with specific exemptions, if needed.

The Committee then heard from a panel of four experts on fire-fighting foams. John Olav Otterson, Eurofeu, represented the producers' perspective, reporting on the PFOA content of fire-fighting foams and underlining that Eurofeu does not oppose listing PFOA in the Stockholm Convention. He underscored that PFOA is an impurity not intentionally added to fire-fighting foams, and is present in legacy products made before 2015. Reporting that concentrations of PFOA in these legacy products

is 500 parts per billion, Otterson suggested that these products should be kept in use until their shelf-life expires because forced replacement is expensive and may lead to accidental releases.

Niall Ramsden, Last Fire Project, reported findings from research on foam selection and use of fire-fighting foams from a user perspective. He stated that both fluorine-free and C6 foams could extinguish tank fires, but noted that performance was foam specific. He noted that newer generation foams, both fluorinated and fluorine-free, can be used for limited-size tank and bund (the catchpit area around tanks containing flammable liquids) fires at typical application rates.

Roger Klein (IPEN) presented fluorine-free, fire-fighting foams as viable alternatives to fluorinated foams, underlining that, *inter alia*, fluorine-free foams do not produce persistent, environmentally damaging end-products on degradation and have no clean-up costs. He stressed that they can be safely used for all applications and are viable alternatives to fluorinated foams.

Kalle Kivelä, European Chemicals Agency (ECHA), spoke about the European Union (EU) legislation derogations (exemptions) for PFOA in fire-fighting foams, noting that these derogations are due to the uncertainty of the cost of PFOA alternatives, and noted inadequate information on the economic and environmental impacts of replacing PFOA in fire-fighting foams.

In the discussion, Luxembourg requested information on the use of PFOA-related compounds in fire-fighting foams and called for additional information on the difference in shelf-life between fluorine-free and fluorinated foams. Ghana requested clarification on the toxicity and bioaccumulation of C6 (the current fluorinated firefighting foam used for these applications). Indonesia asked for information on the uses of PFOA and fluorine-free foams in combatting peatland forest fires, with Otterson noting that foams used in fighting forest fires are not fluorinated. In response to a question from eSwatini comparing fluorinated compounds to fluorine-free foams, Otterson highlighted that C6 foams have low PFOA contamination that translates to 0.01 parts per billion when diluted. Klein drew attention to PFOA contamination from run-off and its hazardous effects on aquifers, and suggested that, in the long run, the replacement cost is lower than the cost of remediating contaminated sites.

In the discussion of the risk management evaluation, Belarus lamented gaps in information on certain applications, such as in the automotive industry, noting that exemptions for uses of fire-fighting foams could lead to a large amount of PFOA and related compounds being released into the environment.

The Netherlands expressed doubt about the “proportionality” of listing these substances in Annex C, noting that the amount of PFOA unintentionally released by all Europeans is about 2 kilograms per year. Noting that many sectors use these substances, China called for setting a practical, science-based target that allows as many parties as possible to ratify PFOA-related amendments to the Convention. Highlighting the challenges of getting complete scientific evidence, Ghana called for taking a holistic view of PFOA-related substances.

IPEN called for consideration of recommendations for exemptions to be carried out in a precautionary manner. Pesticide Action Network called for listing sulfluramid with its CAS number under the PFOA listing to ensure that all countries understand that it is listed under the Stockholm Convention.

The POPRC agreed to establish a contact group on PFOA, to be chaired by Jean-François Ferry (Canada). The group met on Tuesday, Wednesday, and Thursday.

On Friday, Ferry introduced the further assessment of the information (UNEP/POPS/POPRC.14/CRP.5) and the draft

decision (UNEP/POPS/POPRC.14/CRP.4), which he noted contained text from the POPRC-13 decision on this chemical and text on the exemptions as discussed at POPRC-14. On the further assessment, he highlighted that the group agreed that sulfluramid, the active ingredient of which is a precursor to PFOS, is better addressed under the PFOS listing and that PFOA should not be listed in Annex C.

On the exemptions in the decision, he highlighted new recommendations for five-year exemptions for invasive and implantable medical devices and fire-fighting foams for liquid fuel vapor suppression and liquid fuel fires already in installed systems, taking into account control measures that are specified in an annex to the decision. He outlined that the control measures in the annex specify that parties:

- shall ensure there is no export or import except for environmentally-sound disposal;
- should not use the foams for training or testing purposes;
- by 2022, restrict use to sites where all releases can be contained; and
- ensure that firewater, wastewater, run-off, foam, and other wastes are managed in accordance with Article 6.1 (management of stockpiles).

Japan noted its substantial current supply of fire-fighting foams and the need for them, particularly given the country’s high risk of earthquakes. He stated his country’s intent to notify the Secretariat that Japan will use a note in Annexes A and B that states that quantities of a chemical occurring as constituents of articles manufactured or already in use before the date of entry into force of the obligation shall not be considered as listed in the annex.

Ghana characterized fire-fighting foam as a “cross cutting issue” for several chemicals under POPRC’s consideration and said this decision is a good example of how to handle the issue.

The UK welcomed the restriction on fire-fighting foams and expressed concern about the timing indicated for some of the exemptions.

China said that a five-year exemption for fire-fighting foams may not be cost effective, especially for developing countries. New Zealand supported the “realistic and achievable staged” phase-out of PFOA in fire-fighting foams.

The Committee then adopted both the decision and the further assessment.

Final Decision: In its decision (UNEP/POPS/POPRC.14/CRP.4), the POPRC adopts the addendum to the risk management evaluation for PFOA, its salts, and PFOA-related compounds. The POPRC also recommends to the COP that it consider listing PFOA, its salts, and related compounds in Annex A to the Convention with specific exemptions.

For five years from the date of entry into force of the amendment, the Committee recommends the following exemptions:

- manufacture of semiconductors or related electronic devices for: equipment or fabrication plant-related infrastructure containing fluoropolymers and/or fluoroelastomers with PFOA residues; legacy equipment or legacy fabrication plant-related infrastructure maintenance; and photo-lithography or etch processes;
- photographic coatings applied to films;
- textiles for oil and water repellency for the protection of workers from dangerous liquids that comprise risks to their health and safety;
- invasive and implantable medical devices; and
- fire-fighting foam for liquid fuel vapor suppression and liquid fuel fires (Class B fires) already in installed systems, including

both mobile and fixed systems, taking due account of the possible related control measures.

For ten years from the date of entry into force of the amendment, the Committee recommends the following exemptions for manufacture of semiconductors or related electronic devices: refurbishment parts containing fluoropolymers and/or fluoroelastomers with PFOA residues for legacy equipment or legacy refurbishment parts.

The POPRC recommends a specific exemption for use of perfluorooctane iodide and production of perfluorooctane bromide for the purpose of producing pharmaceutical products with a review of continued need for exemptions. The specific exemption should expire at the latest in 2036.

The POPRC recommends to the COP that it consider encouraging parties not to replace fire-fighting foams that contain or may contain PFOA, its salts, and related compounds with short-chain PFAS due to their persistency and mobility, as well as potential negative environmental, health, and socio-economic impacts.

Process for evaluation of PFOS, its salts and PFOA: On Monday, the Secretariat introduced the process for the evaluation of alternatives to PFOS, its salts, and PFOA (UNEP/POPS/POPRC.14/4), draft report on the assessment (UNEP/POPS/POPRC.14/INF/8 and Add.1), and draft report on the evaluation (UNEP/POPS/POPRC.14/INF/9). She noted that there are three documents that will be considered by the COP: the assessment of alternatives; the Secretariat report; and the Committee's recommendation on continued need for exemptions.

Martien Janssen (the Netherlands), Chair of the intersessional working group, presented the assessment of alternatives to PFOS, its salts, and PFOA. He said the report focuses on alternatives for the use of PFOS in: open applications; high-volume uses such as metal plating; fire-fighting foams; and insect baits for leaf cutting ants. He said that 52 alternatives were identified, but underlined the need to consider the efficacy for niche uses, such as foams used for fighting liquid fuel fires.

In the ensuing discussion, Iran asked whether the choices of alternatives are based on their molecular structures, with Janssen noting that this depends on the application of the alternative. Luxembourg pointed to confidential business information as a challenge when seeking alternatives, and suggested using updated regulatory assessments such as those used in the EU. She called for sulfluramid to be subject to permitted use legislation. Peru noted that while some alternatives to sulfluramid have been identified, their toxicity has not been fully investigated.

In response to a query from China on the consequences for those parties who have not ratified the PFOS amendment, the Secretariat stated the amendment has not come into force for eight parties.

The International Council of Chemical Associations called for the POPRC to use the intersessional period between meetings of the COP to conduct feasibility assessments and solicit comments on alternatives from producers and end users. IPEN noted that from the alternatives report and the exemptions list, some acceptable uses, such as fire-fighting foams, could be closed, and cited confidential business information as a hurdle to creating a comprehensive alternatives report. An observer from China suggested allowing an acceptable use in the closed-loop, hard metal plating sector, as there are no releases, and called for caution in amending the Convention and its annexes.

Delegates agreed to establish a contact group, to be chaired by Martien Janssen (the Netherlands). This group met on Wednesday, Thursday, and Friday. On Friday morning, Janssen reported to plenary that the contact group had a lengthy discussion on the

assessment of alternatives to PFOS, and produced a draft decision and annex containing the recommendations from the POPRC. He noted that group still needed to consider fire-fighting foams. The group met again briefly on Friday. A drafting group then prepared the final text of the decision to include the most recent discussions.

On Friday afternoon, Janssen introduced the draft decision, noting that the section on fire-fighting foams aligns with the decision on PFOA.

China underlined that there is a lack of alternatives for PFOS in fire-fighting foams that are effective and environmentally safe, but said that he would agree to this decision as a compromise and in light of the precautionary principle

Ghana and Belarus expressed support for the decision.

An observer from China underscored the need to balance public safety and the environment and his country did not have available alternatives. He expressed hope that China would be able to produce and use PFOS and PFOA for fire-fighting purposes.

IPEN expressed gratitude for the Committee's "leadership, goodwill, and concern for protecting health and the environment."

The Committee adopted the decision.

Final Decision: In the final decision on the evaluation of PFOS, its salts, and PFOA (UNEP/POPS/POPRC.14/CRP.7), the POPRC, *inter alia*:

- submits the report on the assessment of alternatives to PFOS, its salts and PFOA to COP-9;
- requests the Secretariat to finalize its report on the evaluation of information on PFOS, its salts, and PFOA on the basis of comments and suggestions provided by the Committee, taking into account the POPRC-14 discussions, and to submit it to COP-9;
- recommends that the COP consider amending Annex B, taking into account the recommendations set out in the annex to the decision, and that the COP encourage parties that are using sulfluramid as insect bait for the control of leaf-cutting ants to register for an acceptable purpose by notifying the Secretariat in accordance with Convention Annex B;
- requests the Secretariat to revise, by 31 October 2018, the report on the assessment of alternatives taking into account the discussions at POPRC-14;
- invites parties and observers to provide, by 30 November 2018, comments on the revised report; and
- requests the Secretariat to further revise the report on the assessment of alternatives taking into account the comments received for submission to COP-9.

The annex to the decision contains, *inter alia*, a list of POPRC recommendations to the COP that the following acceptable uses no longer be available under the Convention:

- the acceptable purpose for photo-imaging;
- the acceptable purpose for photo-resist and anti-reflective coatings for semi-conductors, and as an etching agent for compound semi-conductors and ceramic filters;
- the acceptable purpose for aviation hydraulic fluids; and
- the use for certain medical devices, such as ethylene tetrafluoroethylene copolymer (ETFE) layers and radio-opaque ETFE production, in vitro diagnostic medical devices, and charge-coupled device (CCD) color filters.

The Committee also recommends that Annex B be clarified as follows: "Insect baits with sulfluramid as an active ingredient for the control of leaf-cutting ants from *Atta* spp. and *Acromyrmex* spp. for agricultural use only."

For fire-fighting foams, the Committee:

- recommends that the acceptable purposes for the production and use of PFOS, its salts, and PFOSF for fire-fighting foams be converted to a specific exemption for the use of fire-fighting foams for liquid fuel vapor suppression and liquid fuel fires; and
- recognizes that a transition to the use of PFAS for applications such as fire-fighting foams is not a suitable option from an environmental and human health point of view and that some time may be needed for a transition to alternatives without PFAS.

Report on Activities for Effective Participation

On Monday, the Secretariat introduced the report on activities for effective participation in the work of the Committee (UNEP/POPS/POPRC.14/INF/10). Chair Gastaldello Moreira invited views on the activities undertaken to enhance effective participation and to improve coordination among the BRS Conventions' scientific subsidiary bodies.

Ghana underscored the importance of effective participation in the POPRC and expressed appreciation for the Committee's Handbook, as well as the regional and online training sessions.

Belarus noted that several parties lack capacity to provide information on new substances and suggested offering seminars to help provide information on chemicals that may be assessed by the POPRC in the future.

An observer from South Africa underlined the value of Committee members' engagement in defending and explaining the work of the Committee at the COP.

The POPRC took note of the information provided.

Workplan for the Intersessional Period

On Friday, the Secretariat introduced the workplan for the intersessional period between the fourteenth and fifteenth meetings of the Committee (UNEP/POPS/POPRC.14/5), which was adopted.

Venue and Date of POPRC-15

The Committee agreed that POPRC-15 will take place from 30 September to 4 October 2019 in Rome, Italy.

Other Matters

From Science to Action: On Friday, the Secretariat introduced the update on the work on "Science to Action" (UNEP/POPS/POPRC.14/INF/11), which she noted includes a revised roadmap as requested by the COP in 2017. She reported challenges and opportunities in strengthening the science-policy interface identified through surveying parties, including the need to increase accessibility of scientific and technical information, particularly in developing countries and countries with economies in transition.

Ghana, Suriname, and Belarus welcomed the initiative, observing that much of the data and information considered by POPRC is generated by developed countries.

The POPRC took note of the information.

Outlines for risk profiles and risk management evaluations: The Secretariat introduced the issue (UNEP/POPS/POPRC.13/INF/11), noting that these cover the information required for Annexes E and F, and calling for suggestions to improve the presentation of the risk profiles and risk management evaluations.

Austria, supported by Canada, suggested grouping the chemical uses presented in the risk profiles to encourage a more holistic consideration. Chair Gastaldello Moreira noted that this could be implemented beginning in the intersessional period.

Canada called for more documentation to be made available during the intersessional period to encourage efficiency during the POPRC meeting.

Ghana highlighted the need for more information on the use and regulation of hazardous substances in developing countries, with Morocco noting that this information is useful in evaluating imported products in user countries.

Luxembourg, with New Zealand, the Netherlands and observers from Norway and the UK, supported maintaining the 20-page limit of the risk profiles, noting that additional information could be contained in an information document. The Netherlands, with Belarus, proposed that the risk profiles and evaluations focus on the main messages and not detailed explanations, with supporting information contained in information documents when necessary. An observer from Norway noted that information documents are not translated.

An observer from the UK suggested adding language on the assessment of the validity and reliability of the data assessed, which would reduce the number of questions during the intersessional period. He noted that a more detailed information document could reduce the length of the risk profile.

IPEN, supported by Ghana, called for an indicative list of substances to be provided to ease the work of regulators.

An observer from China, supported by eSwatini, stressed the need to scrutinize alternatives to ensure they are not POPs that will require elimination in future.

An observer from the US called for peer-reviewed high-quality information, the inclusion of all information in a single document, and suggested that drafters should not be from the country nominating a substance.

The Secretariat took note of these suggestions.

COP-9: The Secretariat noted that the ninth meeting of the COP to the Stockholm Convention (COP-9) will be held back to back with the meetings of the COPs to the Basel and Rotterdam Conventions in Geneva, Switzerland, from 29 April to 10 May 2019, and will not include a high-level segment.

Adoption of the Report and Closure of the Meeting

On Friday, the Secretariat introduced the draft report of the meeting (UNEP/POPS/POPRC.14/L.1), noting that completion of the second half of the report, containing Friday's proceedings, would be entrusted to the meeting rapporteur. Rapporteur Sukhorebra (Ukraine) led the Committee through a paragraph-by-paragraph reading of the meeting report, which the POPRC adopted with minor amendments.

Chair Gastaldello Moreira thanked all participants for sharing their expertise, emphasizing that the Committee is always learning from the members and observers who participate in the POPRC's work. She congratulated the Committee on its successful completion of a challenging technical agenda, saying she felt this week "we accomplished our mission with honors." POPRC-14 was gavelled to a close at 4:11 pm.

A Brief Analysis of POPRC-14

At the fourteenth meeting of the Persistent Organic Pollutants Review Committee (POPRC-14) to the Stockholm Convention on Persistent Organic Pollutants, the number of chemicals on the agenda belied the significant challenges delegates faced during the five-day meeting. While there were only three chemicals to consider, the technical complexity of these closely-related substances, and their widespread past and current use, created substantial work for the Committee. POPRC-14 marked the completion of a long-foreseen transition from "dead" to "live"

chemicals, illustrating the challenges of recommending policy responses to protect human health and the environment for chemicals used in applications such as fire-fighting foams, which are important for human safety.

This brief analysis considers the ways in which the POPRC is responding to the evolving challenges of reviewing live chemicals, while working within the structure of its mandate to offer robust, expert advice to support the continued effectiveness of the Stockholm Convention.

Addressing a Class of Interrelated Substances

The three chemicals on the POPRC-14 agenda were all polyfluorinated substances, which are found in everything from fire-fighting foams to food packaging, and sometimes used as alternatives in similar or the same products. This class of chemicals has garnered attention beyond technical circles recently, with highly publicized campaigns arguing their dangers in some everyday consumer goods like non-stick cookware. In the context of the Stockholm Convention, which is mandated to list specific chemicals that exhibit the distinct characteristics of a POP, a key challenge is clarifying how, exactly, these substances should be defined, and specifically which “related substances” are included in a recommendation or listing of a chemical.

Sulfluramid provides a good example of this challenge. Some participants argued that this insecticide was always implicated in the Convention’s listing of PFOS, because the active ingredient in sulfluramid is a PFOS precursor called N-ethyl perfluorooctane sulfonamide. Yet, sulfluramid is not explicitly specified in the Convention, leading to confusion of whether it is listed and furthering speculation on whether adding it to the PFOS listing, especially by including its specific CAS identification number, would constitute adding a new chemical to the Convention without going through the usual POPRC review process. To complicate matters further, some studies have indicated that sulfluramid might degrade to PFOA, leading some participants to argue that sulfluramid should be explicitly addressed in both the current listing of PFOS and any future listing of PFOA under the Convention.

The POPRC decided to recommend to the COP that it amend its PFOS listing to explicitly include sulfluramid, but not to include this in the PFOA recommendation. This decision clarifies a previous ambiguity in the Convention, because the PFOS listing includes an acceptable purpose for insect baits for leaf-cutting ants, which is the main application of sulfluramid, without specifying the chemical itself. Parties are now clear that they need to register their use of the substance with the Secretariat, which will provide information to the POPRC regarding its use and inform future reviews of the need for PFOS. While sulfluramid has also been found to degrade to PFOA, Committee members recognized the efficiency of listing sulfluramid under PFOS because it is already implicated in that listing. Furthermore, this avoids potentially creating confusion by listing the same substance twice.

Anticipating the COP’s Concerns

As two observers noted, “The COP never strengthens POPRC recommendations.” The POPRC considers both the science and the socio-economic implications of its recommendations to eliminate or reduce chemicals, including recommendations to allow some uses of the chemical to continue, often for a time-limited period, when use of safe alternative chemicals is not economically or technically feasible. At the political level, however, the COP has agreed to allow additional uses of these live chemicals, for longer time periods than the POPRC

recommended, which delays the elimination or reduction of POPs production and use. At POPRC-14 the delegates anticipated this trend by engaging stakeholders and clearly laying out its recommendations and timelines for any exemptions.

This tendency at the COP was particularly evident for chemicals widely used, such as PFOS, short-chained chlorinated paraffins (SCCPs), and decabromodiphenyl ether (decaBDE), where the COP added new “specific exemptions” and “allowable” uses. For decaBDE, the COP even deviated from the Convention’s usual five-year timeline to end such an exemption, lengthening the expiry date to 2036 for legacy parts for vehicles and the end of the service life for airplanes. In some case, such as the SCCP exemption for metal plating, some recalled that the POPRC had identified available, effective, and cost-effective alternatives, such as vegetable oil, and concluded that exemptions were unwarranted.

At POPRC-14, participants anticipated the trend at the political level to expand the use of live chemicals, by clearly laying out the exemptions for PFOA and carefully detailing which of the PFOS exemptions and allowable uses could be ended due to the availability of alternatives. POPRC, perhaps for the first time, deviated from the five-year exemption limit, allowing ten years for the elimination of PFOA in semiconductors and until 2036 for the use of perfluorooctane iodide and production of perfluorooctane bromide for producing pharmaceutical products. For the exemptions related to the use of fire-fighting foams for PFOA, the POPRC laid out a “staged phasedown,” as one member put it. This phasedown constrains the uses of fire-fighting foams, first preventing their use for training and testing purposes, then only permitting their use in areas with appropriate containment facilities. The five-year limit for eliminating their use was seen by many as appropriate, although both Japan and China indicated that their countries may raise socio-economic concerns at the political level.

Fire-fighting foams presented a particularly difficult conundrum for members weighing the dangers to human health and the environment, with the public safety risks posed by fires at places like airports and oil refineries (so-called “class B” fires) where PFOA-containing fire-fighting foams are used. With regard to human health and the environment, delegates considered the dangers of continuing releases of PFOA from fire-fighting foams, particularly given their widespread use and the large amounts of foam dispersed when fighting a fire, which can cause both local contamination and global dispersion of PFOA. On the socio-economic side, an estimated USD80 billion would be required to replace these foams. Notably, as one observer pointed out, many of these PFOA-containing foams are unlikely to ever be used and will simply be replaced at the end of their shelf life. Delegates agreed to recommend calling for the end of some uses of PFOA-containing fire-fighting foams, such as for training and testing purposes, a three-year timeline to limit use of these foams to areas with strict containment facilities, and a five-year exemption for foams used for class B fires that are already installed in fire suppression systems. Even though they agreed to this recommendation, some members flagged concerns that this timeline may be too ambitious due to the widespread use of these substances, foreshadowing issues that will likely be raised at the COP.

Yet, the COP’s decisions to expand allowable uses and specific exemptions are not the end of the POPRC’s work. By design, such COP decisions are mutable, as the POPRC reviews the uses allowed by the Convention and the alternative chemicals that could be employed for those uses. It can then, as it has for PFOS

at POPRC-14, recommend that these uses no longer be allowed, thereby strengthening global regulation of POPs over time.

Furthermore, these recommendations and timelines were established based on information gathered by POPRC members and engagement with stakeholders. The POPRC has historically made significant efforts to engage stakeholders, and is seen by many as exemplary in its inclusive approach that involves industry and civil society in both its meetings and intersessional work. The need to actively seek out contributions from stakeholders was reinforced at this meeting, where an expert panel discussed fire-fighting foams from different “real world” perspectives, ranging from the distributor to end-user. The technical insights offered by these invited experts allowed participants to more robustly debate the exemptions proposed for PFOA, with some hoping that the information provided will assist the Committee to be better prepared for the discussions at the COP.

Looking Ahead to COP-9

In late April 2019, the COP will consider the recommendations made by the POPRC over the last two years. As a result, the COP could add two new chemicals to Annex A the Stockholm Convention, potentially slating the pesticide dicofol and PFOA, its salts, and related substances for global elimination. While the dicofol decision may be relatively straightforward, since only India produces the chemical, Committee members may have to carefully explain their rationale for the PFOA recommendation given its widespread production and use.

After an intense week of discussions at POPRC-14, delegates left Rome confident that they had effectively addressed all the issues on its agenda. As Chair Gastaldello Moreira noted, the Committee had completed this challenging work “with honors.” The next challenge will be to communicate, and defend if necessary, the scientific work completed at this meeting to those making decisions at the political level at COP-9.

Upcoming Meetings

2018 Annual General Meeting of the IGF: The 2018 Annual General Meeting of the Intergovernmental Forum on Mining, Minerals, Metals, and Sustainable Development (IGF) will convene under the theme, “Modern Mining Law and Policy: Accountable, Equitable, and Innovative Approaches.” **dates:** 15-19 October 2018 **location:** Geneva, Switzerland **contact:** IGF Secretariat **email:** secretariat@igfmining.org **www:** <http://igfmining.org/>

30th Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer: The 30th Meeting of the Parties will consider a number of issues, including entry into force of the Kigali Amendment. **dates:** 5-9 November 2018 **location:** Quito, Ecuador **contact:** Ozone Secretariat **phone:** +254-20-762-3851 **fax:** +254-20-762-0335 **email:** ozone.info@un.org **www:** <http://conf.montreal-protocol.org/meeting/mop/mop30>

Second Meeting of the Conference of the Parties to the Minamata Convention on Mercury (COP2): The Conference of the Parties to the Minamata Convention on Mercury will address, *inter alia*, draft guidelines on interim storage of mercury and mercury compounds as well as effectiveness evaluation. **dates:** 19-23 November 2018 **location:** Geneva, Switzerland **contact:** Minamata Convention Secretariat **fax:** +41-22-797-3460 **email:** MEA-MinamataSecretariat@un.org **www:** <http://www.mercuryconvention.org/>

55th Meeting of the GEF Council: The Council is the GEF’s main governing body that meets twice annually to develop, adopt, and evaluate the operational policies and programmes for GEF-financed activities. It also reviews and approves the work programme (projects submitted for approval). **dates:** 17-20 December 2018 **location:** Washington D.C., US **contact:** GEF Secretariat **email:** <https://www.thegef.org/contact> **www:** <http://www.thegef.org/council-meetings/gef-55th-council-meeting>

Fourth Session of the UN Environment Assembly (UNEA): The theme of the fourth session of the UN Environment Assembly is “Innovative solutions for environmental challenges and sustainable consumption and production.” It will be preceded by a meeting of the Open-Ended Committee of Permanent Representatives (OECPR) from 4-8 March 2019. **dates:** 11-15 March 2019 **location:** Nairobi, Kenya **contact:** UNEP **email:** beatpollution@unenvironment.org **www:** <http://web.unep.org/environmentassembly/>

Basel Convention COP14, Rotterdam Convention COP9 and Stockholm Convention COP9: The 14th meeting of the COP to the Basel Convention, the ninth meeting of the COP to the Rotterdam Convention and the ninth meeting of the COP to the Stockholm Convention will convene back-to-back. **dates:** 29 April - 10 May 2019 **location:** Geneva, Switzerland **contact:** BRS Secretariat **phone:** +41-22-917-8271 **fax:** +41-22-917-8098 **email:** brs@brsmeas.org **www:** <http://www.brsmeas.org/>

56th Meeting of the GEF Council: The Council is the GEF’s main governing body that meets twice annually to develop, adopt, and evaluate the operational policies and programmes for GEF-financed activities. It also reviews and approves the work programme (projects submitted for approval). **dates:** 10-13 June 2019 **location:** Washington D.C., US **contact:** GEF Secretariat **email:** <https://www.thegef.org/contact> **www:** www.thegef.org/council-meetings

Fifteenth Meeting of the Persistent Organic Pollutants Review Committee: The Persistent Organic Pollutants Review Committee (POPRC-15) will review the possible listing of hazardous chemicals under the various annexes of the Stockholm Convention. **dates:** 30 September- 4 October 2019 **location:** Rome, Italy **contact:** BRS Secretariat **phone:** +41-22-917-8729 **fax:** +41-22-917-8098 **email:** brs@brsmeas.org **www:** www.pops.int

Fifteenth Meeting of the Chemical Review Committee: CRC-15 is set to convene in the latter half of 2019 to address PFOA, its salts and related compounds, and other notifications submitted during the intersessional period. **dates:** 7-11 October 2019 **location:** Rome, Italy **contact:** BRS Secretariat **phone:** +41-22-917-8729 **fax:** +41-22-917-8098 **email:** brs@unep.org **www:** www.pic.int

For additional meetings, see <http://sdg.iisd.org>

Glossary

BRS	Basel, Rotterdam and Stockholm Conventions
COP	Conference of the Parties
IPEN	International POPs Elimination Network
LRET	Long-range environmental transport
PFAS	Per- and polyfluoroalkyl substances
PFOA	Pentadecafluorooctanoic acid
PFOS	Perfluorooctane sulfonic acid
PFOSF	Perfluorooctane sulfonyl fluoride
PFHxS	Perfluorohexane sulfonic acid
POPs	Persistent organic pollutants
POPRC	Persistent Organic Pollutants Review Committee