

EU proceeds with phthalate ban

A controversial ban on the use of phthalate plasticisers in children's toys has finally been agreed by the EU. Coming after two years of acrimonious debate, the decision has drawn sharp criticism from industry and the EU's own scientific advisers.

The scientists' criticism came in the form of a last minute intervention by Professor Jim Bridges, chairman of the EU's scientific committee on toxicity issues (CSTEE), and Erik Dybing of Norway's National Institute for Public Health, who chairs CSTEE's phthalates working group. They said the scientific evidence to support a ban was lacking.

The Commission responded by reminding CSTEE that the boundaries between scientific advice and risk management had to be clearly distinguished. In a statement, the Commission said that it was "trying in its role as a risk manager to protect the health of children" and was "basing its decision on scientific data but assumes fully its own responsibility as a risk manager". The statement continued: "It is important to separate clearly the scientific advice on risk assessment and the appreciation of the need for immediate action which is the responsibility of the Commission".

The legislation bans six phthalates, rather than the two actually used in toys to avoid manufacturers switching to different compounds. A last minute offer by the European toy industry for a voluntary phase out was rejected by the Commission on the basis that it could not achieve the same objectives as a legal ban. Industry reacted angrily to the move, saying the issue had been driven by "alarmist and totally misguided stories" by Greenpeace and that the decision had long-term implications for chemicals management and product safety. It may consider legal action against the Commission.

The background to the phthalates debate is discussed in the Focus article in this issue.

EPA strengthens air pollution plans

The Environmental Protection Agency has unveiled a series of measures aimed at accelerating improvements in air quality. In December the Agency moved to strengthen smog-reduction plans in nine major urban areas with the most challenging air pollution problems. EPA says although current plans show a strong commitment to reducing smog-causing pollutants further work is needed to ensure public health and the environment are protected.

The metropolitan areas affected are: Atlanta, Baltimore, Chicago, Greater Connecticut, Houston, Milwaukee, New York City, Philadelphia and Washington DC. EPA will be working with each of the areas to update the plans, primarily with regard to transportation and air quality planning.

In a related move, the EPA has also granted clean air petitions to four states against pollution produced elsewhere. The states concerned—Connecticut, New York, Massachusetts and Pennsylvania—had claimed that being upwind of facilities in other states prevented them from meeting EPA's smog standards. The petitions specifically target reductions of nitrogen oxide emissions from large power plants and industrial sources at 392 facilities in 12 states and the District of Columbia. This is the first time EPA has acted under the Clean Air Act to grant petitions for relief of pollutants that blow across state lines.

These are the latest in a series of steps being taken by EPA to help states meet their air quality commitments. In October last year EPA proposed new emission standards for all heavy-duty trucks and is expected to propose even more stringent standards later this year. EPA is also due to issue its final rule for revisions to emission standards for cars and trucks and to bring forward its new rule for cleaner fuels.

EPA Airlinks: www.epa.gov/airlinks

Clean air pays

The public health and environmental benefits of the 1990 Clean Air Act

Amendments outweigh their costs by a margin of four-to-one, according to a recent study by the EPA. The report projects that the Amendments and their associated programs prevent thousands of premature deaths related to air pollution. Millions of asthma attacks as well as a wide range of additional human health and ecological effects are also avoided.

This is the most comprehensive assessment to date of the health and ecological benefits of the 1990 Act. For those aspects that could be given an economic value, EPA estimates that the benefits of CAA programs will be worth around \$110 billion by 2010. This represents the value of avoided illness and premature death, which the report says cost only around \$27 billion to achieve. But a wide range of human health and environmental benefits could not be quantified in dollar terms. These include the control of cancer-causing air toxics as well as benefits to crops and ecosystems from reducing pollutants such as ozone and particulate matter.

An earlier retrospective assessment, looking at the period 1970–1990, found that the benefits of past programs too greatly exceeded costs.

EPA: Benefits and Costs of the Clean Air Act Amendments of 1990, available at www.epa.gov/oar/sect812

Environment programme "a failure"

The EU's flagship policy for improving environmental quality and achieving sustainable development has largely failed, according to the European Commission's own review. Further progress is unlikely without greater efforts to integrate environmental considerations into other areas of policy-making and better implementation of existing policies, the report concludes.

The EU's Fifth Environmental Action Programme was introduced in 1992 in the wake of the Rio summit. The assessment says that only limited progress has been made towards sustainability goals in the intervening period, primarily because other sectors

and member states are not fully committed to its objectives.

The high points include successes in reducing acidification, air pollution and the release of ozone depleting substances. But climate change remains the most pressing problem. The EU will not meet its Kyoto commitments to

greenhouse gases, the report says, adding that EU schemes supporting renewable energy and energy efficiency have "had little impact".

However, the Commission maintains that the overall approach is valid and is continuing with plans to bring forward a sixth action programme later this year.

This follow-on programme will have more clearly defined targets, timetables and indicators.

European Commission: Global Assessment of Fifth Environmental Action Programme, www.europa.eu.int/comm/environment/newprg/global.htm

Environmental quality

Indicators enter the mainstream

Developments on a number of fronts have put indicators at the centre of environmental policy in the EU. At the Helsinki summit last December the European Commission presented a new model for developing indicators of environmental progress and for measuring the integration of environmental considerations into sectoral policies. The Commission says good indicators should be limited in number, relevant, responsive, simple and policy-related.

Under the proposals, progress against indicators will be reported through two means. The European Environment Agency (EEA) will cover up to 70 indicators in its annual report, the first of which is due shortly. In addition, experts from the member states, EEA and Eurostat will work together on a more focused set of "environmental headline indicators" and issue regular reports.

Meanwhile the UK government has published the first in a series of annual reports on the sustainable development indicators unveiled in 1998. The report focuses on a set of around 150 indicators plus a set of 15 key indicators on environmental, social and economic issues. Although the report notes progress in some areas, others show "obvious warning signals". For example, average journey lengths have increased and more journeys are being made by car, and quantities of household waste are increasing faster than recycling.

In Sweden, the EPA is considering how to measure progress towards the 15 environmental goals unveiled by national agencies last year (see *JEM*, 1999, 1, 113N). EPA says some goals, such as "living lakes", will be much more difficult to quantify than traditional pollution reduction targets, but it is committed to formulating a methodology. The climate change goal will be the hardest to achieve, requiring

wide-ranging changes in lifestyle and public policy.

European Commission: Report on Environmental and Integration Indicators to Helsinki Summit, SEC (1999) 1942; DETR: "Indicators of Sustainable Development: A Baseline Assessment"

Canada reports pollution releases

Environment Canada has published the latest National Pollutant Release Inventory summarising pollution releases to air, water and land. The NPRI is a publicly accessible database of 176 pollutants released from facilities nationwide.

The 1997 Summary Report indicates an absolute increase of 12.7% over reported releases for 1996. This breaks the downward trend in release levels for the first time since reporting was made mandatory in 1993. However, Environment Canada says a large proportion of this is due to better reporting rather than an actual increase in releases. The improvement is the result of greater efforts in monitoring compliance and improved methods for estimating releases by reporting sectors.

For the first time the assessment contains qualitative information on pollution prevention activities undertaken by reporting facilities, as well as summaries of possible health and environmental impacts of NPRI pollutants released or transferred in large quantities.

Environment Canada has also published its inventory of greenhouse gases, showing emissions increased by 13% between 1990 and 1997.

Environment Canada: "National Pollutant Release Inventory: 1997 Summary Report" and "Greenhouse Gas Inventory: 1997 Emissions and Removals with Trends", both available at www.ec.gc.ca

The big picture on the Great Lakes

A comprehensive set of environmental indicators needed to get the "big picture" on the state of the Great Lakes has been developed jointly by Canada and the United States.

Environment Canada says this third biennial report marks a shift to a more consistent and understandable way of assessing the condition of ecosystems in the Great Lakes Basin. "By using a set of easily understood indicators it will become easier to assess how far we've come and how much farther we have to go to fully address the complex problems facing the Lakes", said Dr. Harvey Shear, Science Advisor to Environment Canada, Ontario Region.

The 19 indicators presented in the report were selected by scientific experts from a set of 80 indicators that will be phased in and refined over the next 10 years. The governments intend to use the indicators as a basis for monitoring and future research.

The scientists also presented recommendations for the protection and preservation of "Biodiversity Investment Areas": sensitive areas within the Great Lakes Basin that sustain rare and diverse plant and animal communities, and landscapes of special quality.

State of the Lakes Ecosystem Conference: The State of the Great Lakes 1999 available at www.cciw.calsolce.com or www.epa.gov/glnpolsolce/98/

New actions for Nordic environment

The European Commission has unveiled plans for a new programme to combat environmental degradation in northern Europe. The move came as a comprehensive study provided a clearer picture of environmental issues facing the region.

The programme will concentrate on

water and air pollution, nuclear safety and natural resource management and is part of a broader regional initiative towards cooperation between EU and non-EU countries. Major concerns in the region include pollution of the Baltic and Barents Seas, continuing soil acidification from transboundary air pollution, and the nuclear submarine "scrap yards" around Russia's Kola peninsula.

The EU programme will invest in major pollution hotspots and in nuclear safety, develop a regional programme for climate change, and overhaul Helcom, the Baltic Sea protection commission.

Similar issues are highlighted in a review of Russia's environmental performance prepared by the OECD. Russia has failed to make progress in environmental protection in the ten years since the collapse of the

USSR the OECD says. Despite a series of new laws since 1991, many environmental trends are still negative.

As well as carrying health and other risks for the Russian population, the crisis also has broader European and global implications. In particular the country remains a major contributor to regional and global environmental problems such as acid deposition and greenhouse gases.

OECD: "Environmental Performance Reviews: Russian Federation", www.oecd.org

Wetlands at risk

Loss of wetlands along the Gulf of Mexico has reached an alarming rate, according to a recent study. The report, prepared jointly by the EPA and the US

Geological Survey, assesses the condition, extent and geographical distribution of ecological resources in river estuaries along the Gulf coast. The Gulf's many river estuaries serve as nursery grounds for fish, habitat for a wide variety of wildlife, shipping routes and sources of recreation. These diverse uses inevitably cause conflicts.

The report says excess nutrients are leading to algae blooms and oxygen depletion. However, relatively few sediments are contaminated by chemical pollution. Commercial landings of fish and shellfish are generally stable, and gulf estuaries and wetlands continue to support large, stable populations of waterfowl and other coastal birds.

EPA Office of Research and Development: "The Ecological Condition of Estuaries in the Gulf of Mexico, available at www.epa.gov/ged

Chemical hazards

EU considers agency plans

The European Commission is considering setting up a powerful new agency to oversee chemicals management in the EU. Addressing an industry meeting in December, Environment Commissioner Margot Wallström said the existing decentralised system was inadequate and would become even more so with future enlargement of the EU. Ms Wallström indicated that the European Chemicals Bureau, the EU's existing chemicals research agency, could provide the nucleus for the new organisation.

Although the Commission has yet to bring forward formal proposals, the agency is likely to have wide ranging responsibility in risk assessment and product licensing. The EU is due to publish its new chemicals management strategy by the middle of the year.

Nordics turn up heat on flame retardants

Denmark and Sweden are calling for EU-wide action against brominated flame retardants (BFRs), which they say pose unacceptable threats to the environment and human health.

In a paper submitted to EU environment ministers in December, the two countries urge early action on the chemicals, used in furniture and

electronic equipment. Science "does not allow the conclusion that releases of these substances into the environment will not cause harm in the future", the report says. The move mirrors developments in the US, where flame retardants are already under close scrutiny from legislators (see below).

The call came as Denmark was starting work on a national plan for controlling BFRs and publishing a national survey of product flows and potential substitutes. The survey says the major source of BFRs to the environment is evaporation from products in use, and underlines previous concerns about the effects of bioaccumulatives.

European manufacturers are fighting back, claiming that bromine is easily recovered from BFR-treated plastics and that plastics can be recycled. To prove its point, the industry plans to launch pilot recycling plants soon.

Danish EPA, Brominated Flame Retardants: Substance Flow Analysis and Assessment of Alternatives, www.mst.dk; Bromine Science and Environment Forum, www.bsef.com; European Brominated Flame Retardant Industry Panel, www.ebfrip.org

NTP gears up for cancer review

Experts from the National Toxicology Program are to hold public hearings

into nine substances suspected of causing cancer. The scientific review will consider whether the substances should have a possible listing in the tenth edition of the Report on Carcinogens due out in 2002.

Three of the nine substances are used as flame retardants: 2,2-bis-(bromomethyl)-1,3-propanediol, 2,3-dibromo-1-propanol and vinyl bromide. Beryllium and beryllium compounds, used in fibre optics, aerospace and other industrial applications, are also listed. The remaining chemicals are: the dyes dimethoxybenzidine and dimethylbenzidine; IQ, a substance found in cooked meat and fish; styrene-7,8-oxide, a chemical intermediate; and vinyl fluoride, used in making the plastic polyvinylfluoride.

Public hearings were scheduled for January and a second group of chemicals for potential listing will be publicly reviewed later in the year. Background documents on each of the chemicals are available at the NTP website.

National Toxicology Program: <http://roc.niehs.nih.gov/rocpublic>

US slams surfactant controls

European research on the environmental impacts of industrial surfactants has been criticised by the US chemicals industry. Manufacturers fear the

increasing hostility to surfactants, widely used in industrial and consumer detergents, could lead to unjustified EU-wide product bans.

A recent EU review of nonyl phenol ethoxylates (NPEs) highlighted potential toxic effects on aquatic organisms. NPEs degrade to nonyl phenol (NP) which is toxic and thought to be a hormone disruptor. Introducing marketing and use restrictions could eliminate 70% of the environmental burden, the report says. NPEs could be substituted by less toxic and more biodegradable alcohol ethoxylates.

APEREC, a US-based industry group, said the study greatly overestimated the degradation on NPEs to the more toxic NP, and was flawed by use of modelling rather than real-world data. The APEREC favours stiffer monitoring rather than product bans.

A similar row has broken out between Danish authorities and CLER, another US industry group. The focus this time is linear alkylbenzene sulfonate (LAS), the most widely used detergent surfactant. CLER says a Danish initiative to encourage consumers not to purchase products containing LAS fails to take account of the latest scientific evidence (*JEM*, 1999, 1, 114N). CLER maintains that extensive international research has concluded that LAS in sewage sludge poses no significant environmental risk.

Alkylphenols and Ethoxylates Research Council (APEREC), www.aperc.org; Council for LAB/LAS Environmental Research (CLER), "LAS Risk

Assessment for Sludge Amended Soils", www.cler.com

Pesticide problems persist

EU environmental policies have failed to reduce the level of pesticide use over the last five years, according to environmental groups. In a recent paper the Pesticides Action Network (PAN) says the EU has made "no concrete steps" towards fulfilling commitments on pesticides under its Fifth Environmental Action Programme. The Commission has already conceded that the programme has failed to meet its sustainability objectives (see separate item this issue).

PAN is calling for all member states to introduce pesticide reduction programmes within five years, and for subsidies to farmers to be conditional on reductions in pesticide use in agriculture.

As if to emphasise PAN's arguments, the Austrian Environment Agency announced shortly afterwards that levels of the pesticide atrazine in Austrian rivers were actually rising. Although banned in Austria since 1995, an analysis of atrazine concentrations in eleven Austrian rivers showed levels between 0.2 and 0.3 $\mu\text{g l}^{-1}$. The figures are partly explained by atrazine's persistence and by inflows from neighbouring countries where the chemical is not banned. However, the observation that the highest levels occur in April and May suggests some local farmers are flouting the national ban. The Agency plans increased monitoring checks on soil and

crops, and greater surveillance at border controls.

PAN Europe: www.gn.apc.org/pesticidestrust; Austrian Environment Agency: www.uba.gv.at

Swedes sniff out mercury

Authorities in Sweden have identified more than ten tonnes of hidden mercury under a programme to collect and remove the toxic metal from local communities.

A total of 10–11 tonnes of mercury have been located, of which 6–7 tonnes have been collected and 4 tonnes labelled. Around 1.3 tonnes was found in primary and secondary schools and a further 1.7 tonnes in universities and institutes of higher education. But the Swedish EPA believes that 40 tonnes remain in technical products throughout the community.

"We are surprised over the large amounts of containers with leftover mercury in various stock rooms and stores" said Kristina von Rein, EPA's project co-ordinator. Around 80–90% of mercury in schools has now been cleaned up, she says, as well as many factories.

Technicians working on the project were helped by a pair of specially trained detective dogs, Froy and Ville Sigmund, who were able to sniff out mercury in sinks, drains and store cupboards. "The dogs have done a lot to boost publicity for the project up and down the country", said von Rein.

Swedish EPA: www.environ.se

Public and occupational health

EU signals public health agency

Far-reaching changes in European procedures on public health have been recommended by an independent investigation of how the EU handles scientific advice. The proposed European Food and Public Health Authority would provide scientific advice, risk evaluation and crisis management on all public health, environmental and food safety issues.

The proposal arises from a panel of experts set up in May last year in the wake of the BSE crisis. In their report, the scientists stress the agency would have a much broader remit than just

food safety. "Other public health issues are, in health terms, a greater burden on society than the effects of poor food safety", they say. As well as giving scientific advice for product licensing, the agency would have lead roles in monitoring, policy analysis and research on European public health. A legal unit would "evaluate implications of scientific opinions relating to regulatory and legislation proposals".

Unlike the current system of scientific committees overseen by the Commission, the new agency would be independent and have links across the Commission as well as the Council of Ministers and European Parliament.

The Commission is believed to favour

the idea and looks set to bring forward official proposals very shortly.

European Commission: A European Food and Public Health Authority: the Future of Scientific Advice in the EU. Available at www.europa.eu.int/comm/dg24/health/scifuture_food_en.html

Dioxins still a risk

The European population may still be at risk from dioxins despite substantial efforts to reduce exposure over the last two decades. This is the message from a major assessment of the health risks from dioxins published by the European Commission in December.

The main exposure route to dioxins is through food, the study says, and over the last twenty years dietary exposures have been reducing by around 10% per year as legislation controlling dioxin releases has taken effect. However, certain individuals and social groups remain at risk because of the persistence of dioxins in the environment. Breast-fed infants and those with a high consumption of fish, meat and dairy products are thought most at risk. This is because dioxins are fat soluble and accumulate in fatty tissue.

The Commission makes a series of recommendations aimed at reducing human exposures, for both the short term and the long term. These include the introduction of maximum tolerable concentrations for key foodstuffs; greater public information on dioxin risks; and a cost-benefit analysis of dioxin reduction strategies.

Echoing this last point, Greenpeace Sweden has drawn attention to what it says is an inappropriate trade-off between current and future dioxin risks. Using data from scientists, waste management companies and public authorities, Greenpeace claims levels of dioxin in incinerator ashes are increasing as a result of air pollution measures, and are many times official estimates. "The more we clean the dioxins from air the more dioxins we will have in the mountains of ash. We are moving our present pollution to the future", the group says.

European Commission: Compilation of EU Dioxin Exposure and Health Data, www.europa.eu.int/comm/environment/dioxin; Greenpeace Sweden: www.greenpeace.se

Benzene exposure acceptable

Public exposure to the carcinogenic chemical benzene is at much lower levels than those at which health impacts would be expected, according to two recent studies.

Reviewing recent scientific literature on benzene exposures, Concawe, the European oil industry's environmental organisation, says that for the general population the daily dose is less than 3% of the current European occupational exposure limit. Those most at risk are traffic wardens and cycle couriers. In Europe, typical benzene concentrations are $1.6 \mu\text{g m}^{-3}$ in rural areas, $6 \mu\text{g m}^{-3}$ in urban areas and $12 \mu\text{g m}^{-3}$ in cities, rising to $40 \mu\text{g m}^{-3}$ in local hot spots.

These findings are broadly confirmed by a study of UK exposures by Leicester University. This found ambient air concentrations in the range $1-6 \mu\text{g m}^{-3}$, rising to a "worst case" of $41 \mu\text{g m}^{-3}$ for an urban smoker working close to a busy road. The study concludes that "any risk of leukaemia to adults at general population level ... is likely to be exceedingly small and probably not detectable using current methodology".

Concawe: Environmental Exposure to Benzene, www.concawe.be; Institute for Environment & Health: "Benzene in the Environment", www.leicester.ac.uk/lieh

Conflicting evidence for electricity risks

An inconclusive picture of the health risks from electromagnetic fields (EMFs) emerged from two studies published in

the UK late last year. A major study into childhood cancer by scientists at Cambridge University found no evidence that exposure to EMFs associated with electricity supplies increases the risk of childhood cancers. Writing in *The Lancet*, the authors say no link could be found with childhood leukaemia, cancer of the central nervous system or any other childhood cancer. The study followed 2000 children under 14 with a malignant disorder and made electromagnetic field measurements in their bedrooms and houses.

The Cambridge study was released a day after other research pointed to possible mechanisms for cancer formation that could establish a link between electromagnetic radiation and cancer. In two papers in the *International Journal of Radiation Biology*, Professor Denis Henshaw of the University of Bristol concludes that the presence of electromagnetic radiation causes increased deposition of small pollutant particles on the body and within the lungs. Thus, those living in the vicinity of power lines may have increased exposures, both internal and external, to pollutants such as particle aerosols and radon decay products known to be linked to cancer. Professor Henshaw claims this is the first potential explanation for a cancer mechanism associated with EMF.

Exposure to power-frequency magnetic fields and the risk of childhood cancer, in The Lancet, 354, pp. 1925-1931; International Journal of Radiation Biology, 75(12), pp. 1505-1521 and pp. 1523-1531

Research activities

Particles impact climate

Microscopic particles called aerosols have a cooling effect on the atmosphere, according to research sponsored by NASA. Researchers from the universities of Illinois, Washington and Arizona are studying the influence of aerosols on climate change and comparing the results from two fundamentally different measurement techniques.

The experiments combine remote techniques, such as satellite-based lidar, able to carry out wide area surveys, with

local techniques that provide detailed information on particle characteristics. "Both methods had high uncertainties during the clean conditions, but during the polluted conditions our analysis indicates agreement on key quantities within about 20%", said Tad Anderson, a Washington meteorologist.

These latest results confirm the findings of the Washington team and Italian researchers last year, which showed that certain organic particles increase the number of cloud droplets in polluted air. In areas containing these particles more sunlight than normal is

reflected back into space, resulting in a localised cooling. The phenomenon affects climate locally and probably regionally.

Both sets of results will be used to help interpret future measurements, including satellite-based global aerosol surveys planned by NASA for 2003.

International probe into Arctic ozone

An international team of researchers is involved in the largest ever field

investigation into ozone levels in the Arctic. Scientists from Canada, Europe, Japan, Russia and the United States are spending the winter taking measurements that will help assess changes in the Arctic upper atmosphere.

The team is using a wide variety of airborne instruments to take measurements of stratospheric composition. It is hoped the results will provide insights into the processes that control ozone levels at mid to high latitudes during the Arctic winter. The project is jointly sponsored by NASA and the European Union.

SOLVE: <http://cloud1.arc.nasa.gov/solve/index.html> and *THESEO 2000*: www.ozone-sec.ch.cam.ac.uk

UNEP recognises ozone chemist

An atmospheric chemist who pioneered investigation of the chemistry of the ozone layer has been honoured by the United Nations Environment Program. Professor Mario Molina of the Massachusetts Institute of Technology was the winner of the 1999 Sasakawa Environment Prize. Awarded annually since 1984, the \$200,000 Prize recognises individuals who have made global

contributions in environmental protection.

Presenting the prize Stanley Clinton-Davies, chairman of UNEP's selection committee, said that "the confidence with which many aspects of the science of ozone destruction is now understood comes directly from Professor Molina's work".

His contributions on ozone had already won Molina the 1995 Nobel Prize in Chemistry, which he shared with F. Sherwood Rowland and Paul Crutzen.

UNEP: www.unep.org/unep/perlipal/sasakawa

All change for water labs

Revisions to EPA's certification requirements for water laboratories came into effect at the beginning of the year.

The new provisions introduce updated versions of 25 American Society for Testing and Materials (ASTM), 54 Standard Methods for Examination of Water and Wastewater, and 13 EPA Analytical Methods for compliance determinations of chemical contaminants in drinking water.

Previous versions of the 13 EPA Methods have been withdrawn. Earlier versions of the SM and ASTM methods will continue to be approved.

New methods for determination of total coliforms, lead, magnesium and acid herbicides have also been introduced, together with various technical corrections and clarifications.

EPA Office of Ground Water and Drinking Water: www.epa.gov

Risk centre for LSE

The London School of Economics has launched an interdisciplinary centre dedicated to the investigation of risk management. The Centre for the Analysis of Risk and Regulation (CARR) brings together researchers from a wide range of disciplines to teach and study on risk-related issues in modern society.

Although not concerned exclusively with environmental or chemical risks, the Centre will address organisational, technological and regulatory systems associated with these and other issues. The new Centre is led by Professor Michael Power, PD Leake Professor of Accounting at LSE.

Publications

Combustor emissions methodology

The National Center for Environmental Assessment has published a methodology for assessing health risks associated with indirect exposure to combustor emissions. The methodology is in response to the 1993 Combustion Strategy for Hazardous Waste Incinerators which required EPA and plant operators to conduct indirect exposure assessments to evaluate the impact of stack emissions. The importance of indirect pathways has since been extended from hazardous waste incinerators to all combustion plant. This document updates previous methodologies on assessing combustor emissions and dioxin exposure, and provides guidance on conducting indirect risk assessments.

EPA 600/R-98/137—Methodology for assessing health risks associated with multiple pathways of exposure to

combustor emissions. National Centre for Environmental Assessment. Available at: www.epa.gov/ncea/combust.htm

Diesel health assessment

NCEA has issued a revised draft assessment of the possible health hazards from human exposure to diesel engine exhaust. The assessment focuses on hazard identification and dose-response analysis for the purpose of characterising the risk of diesel exhaust exposure. Background information on diesel engine emissions and exposure is also presented. The report follows EPA risk assessment methods for identifying possible chronic, non-cancer health hazards as well as carcinogenicity hazards. Publication of the final report is expected early in 2000.

Health Assessment Document for Diesel Emissions, Science Advisory Board Review. National Centre for Environmental Assessment. Available at www.epa.gov/ncea/diesel.htm

Socio-demographic data for risk assessment

Risk and exposure assessments often need to identify those groups within the general population who have the greatest exposure to chemical contaminants. New guidance from NCEA will assist assessors in identifying and enumerating potentially highly exposed populations. The document presents data on factors which could potentially impact on an individual's or group's exposure to environmental contaminants based on activity patterns (how time is spent), microenvironments (locations where time is spent), and other socio-demographic data such as age, gender, race and economic status. Populations more exposed to various chemicals of concern, relative to the general population, are also addressed.

EPA/600/R-99/060 Sociodemographic Data Used for Identifying Potentially Highly Exposed Populations. National Centre for Environmental Assessment.

Available at www.epa.gov/ncea/sociodeg.htm

Health risk assessment framework

The US EPA has recognised the need to develop a framework for human health risk assessment that draws together practice throughout the Agency. The framework will set out the scientific basis, principles and policy choices underlying past and current risk assessment approaches. It will be a central reference point and will provide recommendations for integrating and harmonising risk assessment methodologies for all human health endpoints. These documents summarise two internal colloquia which brought together EPA scientists to discuss these issues.

EPA/600/R-99/001 Summary of the US EPA Colloquium on a Framework for Human Health Risk Assessment, Volume 1; and EPA/600/R-98/155, Volume 2. National Centre for Environmental Assessment. Available at www.epa.gov/ncea/colloquium.htm

Validation of toxicological methods

ICCVAM coordinates issues within the US federal government relating to the development, validation, acceptance and harmonisation of toxicological test methods. It is a collaborative body of the National Institute of Environmental Health Sciences (NIEHS) and 13 other regulatory and research agencies. This document updates guidance to test method developers on the information needed by ICCVAM to evaluate the validation status of new or revised test methods at any stage of development and after completion of validation studies. It includes a framework for organising the information supporting the validity of a test method.

Evaluation of the Validation Status of Toxicological Methods: General

Guidelines for Submissions to the Interagency Coordinating Committee on the Validation of Alternative Methods (ICCVAM). Available at <http://ntp-server.niehs.nih.gov/htdocs/ICCVAM/iccvam.html>

Mercury Research Strategy

EPA's Mercury Research Strategy aims to provide information, methods, models and data to address key scientific questions needed to assess and manage mercury risks. The strategy provides broad indications of research priorities for the next five years but does not detail specific projects or outputs. It is a resource for EPA managers in deciding future priorities and budgets and will be backed up by a more detailed implementation plan to be developed by the Office of Research and Development.

Mercury Research Strategy, NCEA-I-0710, National Centre for Environmental Assessment. Available at www.epa.gov/ncea/mercstra.htm

Hazardous waste analysis

More than just a "how-to" book, this text provides both environmental and health professionals with the resources necessary to analyse hazardous wastes and determine their impact on the environment and on individuals. It defines the (US) legal requirements of hazard identification; discusses the regulatory requirements relevant to industrial hygiene, safety and engineering personnel; provides practical information on state-of-the-art sampling, field analysis, and laboratory-analysis methods; and educates readers about the scientific concepts necessary to understand future developments.

Hazardous waste analysis, Shane S. Que Hee, 1999, ISBN 0865876096

Aerosol sampling

Significantly expanded and completely updated, this revision of the 1985 text provides an in-depth look at particle size-selective criteria for aerosol exposure assessment. The book, prepared by the ACGIH Air Sampling Procedures Committee, considers not only the harmonized criteria agreed upon by such scientific bodies as ISO, ACGIH, and CEN, but also the new issues that are emerging as a result of the criteria. Topics covered include how particle size affects the manner in which particles react with biological systems, and how standards should be set to define and determine the acceptability of aerosol sampling instruments in relation to the new particle size-selective criteria.

Particle Size-Selective Sampling for Health-Related Aerosols, James H. Vincent, Editor, 1999, ISBN 1882417305

Internet resources for analysts

Revised to reflect the changes and growth in online information, *Chemical Guide to the Internet* is written for consultants, engineers, students, lawyers and researchers in the chemical field. The Second Edition contains over 200 new entries and over 400 verified and updated entries. As well as extensive listings of environmental organisations and EPA websites, the Guide covers academic institutions, Internet discussion groups, newsgroups, and gopher resources.

A second book provides similar coverage for quality management, covering nearly 400 websites, discussion lists and newsgroups, as well as nearly 200 pages of guidelines for quickly finding essential information online.

Chemical Guide to the Internet, 2nd Edition, C. C. Lee, EPA National Risk Management Research Laboratory, 1999, ISBN 086587655X; and *Quality Resources on the Internet,* James R. Clauson, 1999, ISBN 0865876657

Events

Tools for Urban Water Resource Management and Protection: A National Conference. 7–10 February 2000, Chicago, IL. National conference for local urban water quality practitioners.

FDA Science Forum. 14–15 February 2000, Washington DC. Forum for multi-disciplinary discussion on safety evaluation and risk management. Details at www.aaps.org/edumeet/fsasf/index.html

Monitoring and Abating VOC Emissions. 28 February 2000, London, UK. IBC Conferences.

Toxicological Hazard and Risk

Assessment: Human Health and the Environment. 6–7 March 2000, London, UK. IBC Conferences.

Third Biennial Freshwater Spills Symposium. 6–8 March 2000, Albuquerque, NM. Information exchange on freshwater oil spills.

Data for Science and Society: Second National Conference on Scientific and Technical Data. 13–14 March 2000, Washington DC. Addresses multi-disciplinary issues in managing and using scientific and technical data. Organised by US National Committee for CODATA: www.epa.gov/nceal/codata.htm

Society of Toxicology Annual Meeting. 19–23 March 2000, Philadelphia, PA. Details for the Society of Toxicology at: www.toxicology.org

10th Annual West Coast Conference on Contaminated Soils and Water. 20–23 March 2000, Mission Valley, CA. Details from the Association for the Environmental Health of Soils: www.aehs.com/wcc2000web/wchomepage2000.html

Volatile Organic Compounds: Demonstrating compliance and

enforcement of control measure for solvent-using industries. 27 March 2000, London, UK. IBC Conferences.

HAZMAT 2000 Spills Prevention Conference. 4–6 April 2000, St. Louis, MO. Hazardous material accident prevention, preparedness and response activities.

Health Effects Institute 2000 Annual Conference. 9–11 April 2000, Atlanta, GA. Annual meeting on health-related effects of transport. Details from HEI at: www.healtheffects.org/annual.htm

8th International Conference on ElectroAnalysis. 11–15 June 2000, Bonn, Germany. European Society for ElectroAnalytical Chemistry and Society for ElectroAnalytical Chemistry. Details from www-upb.ipc.kfa-juelich.de/upb/aktuell/ESEAC2000_en.htm

30th International Symposium on Environmental Analytical Chemistry. 13–16 June 2000, Espoo, Helsinki, Finland. Details from International Association of Environmental Analytical Chemistry, e-mail: iaeacmfrei@access.ch or tiina.harju@vtt.fi

Fourth International Symposium on Speciation of Elements in Biological,

Environmental and Toxicological Sciences. 25 June–1 July 2000, Whistler, B.C., Canada. Details from Evert Nieboer, McMaster University, Hamilton, ON, Canada, tel: +1 905 525 9140; fax +1 905 522 9033; e-mail: nieboere@fhs.mcmaster.ca; <http://www.science.mcmaster.ca/speciation/>

25th International Conference on Heavy Metals in the Environment. 6–10 August 2000, Ann Arbor, MI. Details from www.sph.umich.edu/eih/heavymetals/

26th International Congress on Occupational Health. 27 Aug–1 Sept 2000, Singapore. The Annual Meeting of the International Commission on Occupational Health (ICOH). Details from ICOH2000, e-mail: icoh2000@post1.com or see www.icoh.org.sg

X2001: Conference on Exposure Assessment in Epidemiology and Practice. 10–13 June 2001, Göteborg, Sweden. Details from x2001@ymk.gu.se or see www.ymk.gu.se

WTQA 2000. 5–10 August, Arlington, VA. Details from Eileen O'Toole, e-mail: eileen_otoole@wpi.org

Web bytes

Pesticides research

A new on-line newsletter aims to keep scientists, doctors, health lawyers and activists up-to-date with the latest findings in pesticides research. *Pesticide Research Updates* summarises recent scientific articles covering epidemiological and toxicological studies of pesticides as well as medical case reports. The newsletter is published by Pesticide Action Network North America in cooperation with Californians for Pesticide Reform. Scientists willing to contribute to the review process are invited to contact PANNA.

www.panna.org/pannal/resources/pru.html

Children's ED exposure

New information on children's exposures to endocrine disrupting chemicals, presented at an August 1999 symposium organised by the American Chemical Society, are now available at: www.acs-envchem.dug.edu/eds.htm

An easy to understand slide show, entitled *Preventing Children's Exposure to Endocrine Disruptors—A Teaching Aid* is also available at www.instantref.com/children.htm

The Swedish view

The Swedish EPA has launched a new publication covering the Swedish

environment and environmental policies. *EnviroReport* is published in both printed and on-line editions. Each issue is thematic and deals with a particular environmental subject. The first, November 1999 edition focuses on sectoral integration and transport.

www.environ.se/enviroreport

Swedenvironment, the on-line news round-up from Swedish EPA, the Ministry of Environment and the National Chemicals Inspectorate, is also available at:

www.environ.se/swedenvironment/index.html