

>> POLLUTION 22

Troubled waters

Can drilling for oil and gas in the world's most hostile environments ever be safe?

>> BUILDING 26

A deeper green

Construction firm Skanska's vision for its projects looks for zero environmental impacts

>> QUICK WINS 31

Going automatic

How installing controls can reduce by 40% the amount of energy consumed by lighting

the environmentalist

environmentalisonline.com

October 2011

Bhopal's legacy

Greenspace

takes the hard work out of compliance

Greenspace is a consultancy supported platform for your Environmental, Health & Safety Management Systems. Build your Greenspace site from a growing range of applications.

- Legal Register updates and manages compliance
- Aspect Register controls your impacts
- Carbon Manager to achieve your CRC or CSR goals
- Store and link to your ISO 14001 & OHSAS 18001 documents
- Publish your CSR report, carbon footprint and policy

“Legal Register is a personal service that focuses sharply on the legislation that could affect our activities at our Stanlow complex. It gives me peace of mind for our ongoing compliance.”

Steve Cross, Environmental Manager, Shell UK

For further information and to apply for a FREE* trial, please contact:

Guy Jeremiah
t 020 7928 7888
e info@legalregister.co.uk
www.watermangroup.com

To find out more visit

www.legalregister.co.uk

OCTOBER

NEWS

- 4** European Commission pulls plug on RHI
RO delay adds to renewables uncertainty
- 5** Roadmap signals resource-efficiency drive
across the EU, but environmentalists warn
that the UK lacks sufficient waste facilities
- 6** New reporting standards launched
Green businesses scoop Scottish awards
In parliament Chris Davies MEP says it's
time for the EU to provide leadership
- 8** Shale gas find "threatens" UK environment
CO₂ performance key for suppliers
- 9** Ministers promise the countryside will be
protected by the NPPF
Retailer fined £185k for illegal landfills
- 10** Chancellor backtracks on green goals
Case law Experts from LexisPSL on an
appeal challenging the erection of wind
turbines near a special protection area

BRIEFING

- 13** New regulations: transport, energy,
environmental protection, planning,
hazardous substances
- 14** Latest consultations: waste, biodiversity,
environmental reporting, transport
New guidance: permitting, civil sanctions,
heat recovery, capital allowances

REGULARS

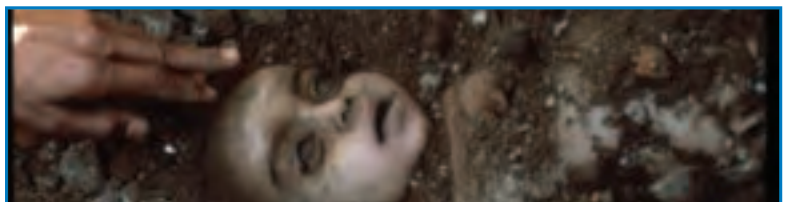
- 38** My career – Lucy Millard, environment
and sustainability officer, University of
Manchester

IEMA NEWS

- 33** Time to book your conference place
NQA airs 50001 at IEMA conference
- 34** Doing good, making money
IEMA publishes biodiversity guide
Regional events and workshops
- 35** First forum for EIA Quality Mark
Training directory
- 36** IEMA unveils exhibition partners

October 2011 » environmentalstonline.com

FEATURES



16 Bhopal's never ending disaster

Twenty-six years after the world's worst industrial disaster, Andrew Tinsley and Richard Ansell revisit the Bhopal tragedy



22 Troubled waters

With oil and gas exploration moving progressively into more hostile environments, John Barwise asks whether it can ever be safe



26 A deep-green future

Construction company Skanska is pursuing a sustainability strategy that it describes as "deep green". *the environmentalist* reports



29 Push the right buttons

Penny Walker discusses the six sources of influence that environmentalists can use to help them encourage work colleagues to change their behaviour



31 Let there be light

The first in a new series looking at cost-effective ways to reduce energy and resource use focuses on installing automatic lighting controls

BUTTERWORTHS ENVIRONMENTAL LAW NEWSLETTER

keeps you from looking 'green' in front of colleagues and clients

Butterworths Environmental Law Newsletter (ELN) is an authoritative, well-researched and incisive newsletter, written by leading practitioners and experts at Trowers & Hamlin, which offers commentary and analysis on environmental law. **Butterworths Environmental Law Newsletter** offers an excellent mix of in-depth features; case, legislation and current awareness updates; and articles covering both technical and practical pieces.

The layout allows easy navigation and is well-suited to a time-pressured day. It is an essential companion for the busy environmental lawyer, environment managers, CSR managers and local authority officers and lawyers.

Butterworths Environmental Law Newsletter is an essential companion in helping busy environmental lawyers, local authorities and businesses keep fully up to date regarding environmental law developments; it provides timely updates with no waffle.

News Update

A monthly round-up of key news of importance to environmental lawyers, including practice points, consultations, planned legislation, and forthcoming cases.

Legislation Update

A round-up and analysis of recent and forthcoming legislative changes with expert commentary.

Case Reporter

Summaries of recent key environmental cases, with additional analysis and commentary to provide you with the most up-to-date quality case reports and summarised digests. Our case sections save you time finding the most relevant case information.

Features

Leading practitioners provide an excellent mix of high quality features analysing and commenting on the major developments relating to environmental law of critical importance to practitioners.



TAKE OUT YOUR SUBSCRIPTION TODAY!

1 ☐ YES! I would like a 12-month subscription to *Butterworths Environmental Law Newsletter*, please invoice me for £204 per year for 12 issues.

2 **My Delivery Details** *Required Fields

*Title (Mr/Mrs/Ms) *First Names

*Surname

*Job Title

*Company

*Address 1

*Address 2

*Address 3

*Town

*Postcode

Telephone

Email

Signature

Date

3 **Return Your Order**

☒ Marketing Department, LexisNexis, Freepost RSJB-BCTH-ZGUB, Quadrant House, The Quadrant, Sutton SM2 5AS

Tel +44 (0)845 370 1234

Fax +44 (0)20 8212 1988

Email newsales@lexisnexis.co.uk

Please quote response code
AD8085

Privacy Policy

We have a commitment to protecting your privacy. We may use the information we collect from you to keep you informed of LexisNexis products and services. We do not sell, trade or rent your email address to others, but we may pass your postal details to trusted third parties. If you do NOT wish to be kept informed by mail ☐ phone ☐ fax ☐ email ☐ of other LexisNexis products and services, please tick the relevant box. ☐ If you do NOT wish your mailing details to be passed onto companies approved by LexisNexis, to keep you informed of their products and services, please tick the box.

For further details of our privacy policy please visit our website at:
www.lexisnexis.co.uk/contact_us/privacypolicy.html

The Institute of Environmental Management & Assessment (IEMA) is the UK's largest environmental professional body, providing practitioners with career guidance, ongoing support and development opportunities to ensure sound environmental performance delivers business benefit. IEMA is dedicated to placing professionals at the heart of change.

IEMA works alongside government, the media and industry to enhance the recognition of the profession and promote the importance of practitioners in combating climate change, working towards a low-carbon economy and building a sustainable future.

IEMA

St Nicholas House
70 Newport
Lincoln LN1 3DP
tel: +44 (0) 1522 540069
fax: +44 (0) 1522 540090
info@iema.net
www.iema.net

Editor

Paul Suff
paul.suff@lexisnexis.co.uk

Deputy editor

Sarah-Jayne Russell
sarah.russell@lexisnexis.co.uk

Managing editor

Louis Wustemann
louis.wustemann@lexisnexis.co.uk

Senior sub-editor

Adella Peyton

Group advertising manager

Sophie Wright
tel: +44 (0) 20 8212 1913
sophie.wright@lexisnexis.co.uk

Recruitment advertising

Elaheh Umeh
tel: +44 (0) 20 8212 1984
elaheh.umeh@lexisnexis.co.uk

Senior marketing executive

Victoria Newman
victoria.newman@lexisnexis.co.uk

Design

Jack Dougherty
jack.dougherty@lexisnexis.co.uk

Advertisement production

John Woffenden
john.woffenden@lexisnexis.co.uk

Editorial director

Simon Collin
simon.collin@lexisnexis.co.uk

IEMA communications coordinator

Katrina Pierce
k.pierce@iema.net

Advertising, subscription and back-copy enquiries to

Customer services,
tel: +44 (0) 845 370 1234
The 2011 annual rate is £135.

Printing

Headley Brothers Ltd, Ashford, Kent

Published by

LexisNexis, Quadrant House, The Quadrant,
Sutton, Surrey SM2 5AS
www.lexisnexis.co.uk

© IEMA 2011

LexisNexis aims to provide authoritative and accurate information at all times. Its publications are, however, for guidance only and are not an official information source. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical or otherwise, without the prior written consent of the publisher and editor.

the environmentalist is
printed by ISO 14001
certified printers on 55%
recycled paper stock and
despatched in biodegradable
polywrap



Slipping away?

Over the past decade, government ministers have, by and large, championed the UK taking a leading role in tackling climate change and been critical of countries that have not signed up to international agreements to keep global temperature rise within acceptable limits. The Climate Change Act, with its legally binding carbon budgets, is testament to this. We may now be witnessing a shift, however.

The chancellor told his party's conference (p.10) that the UK must no longer aspire to leadership by reducing its emissions faster than other EU member states.

George Osborne claimed to have insisted on a review of the targets in 2014 before signing off on the 2023–27 carbon budget, which commits the UK to halving its emissions against 1990 levels by 2025. The chancellor's stance suggests that the targets might be watered down if they are seen to hinder the economy.

The chancellor says that the UK must no longer lead on climate change, suggesting that the UK's CO₂ reduction targets might be watered down if they hinder economic growth

We already know that the government's definition of sustainable development is one that puts economic growth ahead of environmental safeguards – although there are signs that it may alter the proposed national planning policy framework for England following protests (p.9).

There are other worrying signs that support for action on climate change from the so-called greenest government may be wavering. Reports have emerged that talks between the government and ScottishPower over funding for the energy company's carbon capture and storage (CCS) project at its Longannet power station are near to collapse, putting at risk the development in the UK of an industry that could support growth and jobs.

What is puzzling about the chancellor's remarks is that one of the coalition's flagship policies, the Green Investment Bank, could provide the spark for an economic renaissance while at the same time supporting its previously stated environmental ambitions.

Given the freedom to borrow – something the Treasury refuses to sanction until at least 2015 – the Green Investment Bank could fund desperately needed low-carbon infrastructure, including CCS, creating thousands of jobs.



Paul Suff, editor

Short cuts

Scotland leads on emissions cuts

New data from DECC on regional emissions reveal that greenhouse-gas (GHG) reductions in Scotland are deeper than for other parts of the UK. The department's annual GHG inventories, which collate data on emissions from each of the devolved governments, reveal that by the end of 2009 the UK had reduced its overall output of the harmful gases by 28.9% on 1990 levels. Scotland's emissions are down 30.5% since 1990, while England, which produces more than three-quarters of the UK's total GHG emissions, lags just behind, having reduced its emissions by 29.5%. Wales, which had only cut its emissions by 11% against 1990 levels by 2008, is now beginning to catch up, producing 23.3% fewer GHGs than in 1990. Meanwhile, Northern Ireland has cut its emissions by just 20.3%. Although he described the results as encouraging, the Scottish minister for environment and climate change, Stewart Stevenson, warned that more innovative methods would be required to ensure further reductions in emissions.

PAS 2050 revised

BSI has published a revised version of its carbon footprinting standard PAS 2050 to make it more accessible and to bring it into line with other international footprinting methods. The specification, which outlines a framework for assessing the amount of carbon emitted in the creation of products and services, now allows for the incorporation of additional sector-specific requirements. It also clarifies how recyclable materials should be assessed and includes emissions from biomass and other biogenic sources (lexisurl.com/iema11041). BSI has also called for industry feedback on a draft of its new quality standard – PAS 2030 – for firms offering services under the government's Green Deal. The new standard, created for DECC, sets out requirements to ensure the installation of new energy-efficiency measures is completed properly (lexisurl.com/iema11042).

Commission pulls plug on RHI

Energy DECC was forced to postpone the launch of the Renewable Heat Incentive (RHI) at the eleventh hour after the European Commission failed to give state aid approval for the scheme due to concerns that the tariff for large biomass installations is set too high.

The RHI was given the green light by the government in March and was due to begin taking applications, mainly from big heat users in industry, on 30 September. DECC says that it will now have to alter the large biomass tariff before resubmitting amended RHI Regulations to parliament for approval. "We are committed to launching the scheme as soon as possible to minimise disruption to stakeholders," said the official DECC statement. A spokesperson for the energy and climate change department told *the environmentalist* that it hopes the scheme will be up and running by the end of November.

The changes to the RHI will affect large biomass installations over 1,000kWth, which under the government's existing proposals would attract a tariff rate of 2.6p per kWh over a 20-year period.

Potential suppliers and customers have lambasted the government for not having secured EC approval in time for the launch. "The announcement for RHI funding was made in the Comprehensive Spending Review last October so the government should have ironed out the wrinkles well in advance of the launch date," said William Worsley, president of the Country Land and Business Association.

The previous government had proposed the RHI and it was originally due to start in April 2011, but the coalition put back the start date by six months following the election.

There is a fear that the latest delay will further damage investor confidence, which has been hit by the recent changes to the feed-in tariff. "The UK government has repeatedly put off the implementation of the RHI, resulting in potential customers holding off purchasing decisions and technology providers hesitating to invest in the supply chain," said Dr Jonathan Scurlock, renewable-energy and climate change adviser at the National Farmers' Union.

RO delay adds to uncertainty

Energy DECC's delay in launching a consultation into subsidies for renewable energy is adding to concerns in the sector about its ability to attract investment.

In December 2010, energy minister Charles Hendry announced that DECC would fast-track its review of the certificate bandings applicable under the Renewables Obligation (RO) from April 2013. DECC confirmed the consultation would take place this summer, with the bandings to be announced in the autumn, but the consultation is yet to take place.

"The delay to this consultation is very bad timing," said Leonie Greene from the Renewable Energy Association. "With the general uncertainty caused by the backdrop of the electricity market reform, investors want as low a risk and as much confidence as possible. In comparison with other countries the UK is not looking attractive right now."

Alan Whitehead MP believes the delay may have been caused by the cap imposed on DECC's spending on renewables. "When DECC said it would accelerate the review the landscape was different and they

thought they could do it, but since then the Treasury-based cap on imputed tax levy measures has emerged."

The cap, to which DECC has agreed, limits how much can be spent on funding the feed-in tariff (FIT) scheme, the warm homes discount and the RO until 2015.

"If DECC is trying to put more RO certificates into wind and tide, then that's going to have a pretty deleterious effect elsewhere across the cap," warned Whitehead. DECC's budgeting calculations are complicated by the fact that the FIT scheme is likely to exceed its budget, despite the controversial tariff changes this year, and the newly announced Energy Companies Obligation will have to be funded from within the same cap.

"DECC has had to go back to the drawing board with several of its calculations," confirmed Whitehead.

Concerns over the delay to the RO consultation follow accusations that the chancellor, George Osborne, blocked moves to amend the Energy Bill to introduce mandatory display energy certificates for commercial buildings.

Roadmap signals resource-efficiency drive across EU

UK lacks facilities to recover materials

Waste Eliminating landfill and halting biodiversity loss by 2020 are the primary goals of the new roadmap from the European Commission to a resource-efficient Europe.

It outlines measures that will safeguard the use of key resources such as water, clean air and other ecosystem services, and ultimately ensure that the EU economy is functioning sustainably and competitively. "Green growth is the only sustainable future – for Europe and the world," said environment commissioner Janez Potočnik. "Industry and environment need to work hand in hand – in the long term our interests are the same."

The roadmap aims to ensure that by 2020 ecosystem services are properly valued by governments and businesses and that waste has become a managed resource. The commission says that member states must do more to encourage consumers to move towards more resource-efficient products, shifting tax burdens towards polluters, ensuring product prices better reflect the costs of resources, and promoting eco-design and eco-labelling.

The scale of the task facing member states to improve resource efficiency is revealed by a report from the Green Alliance. The document, *Reinventing the wheel: A circular economy for resource security*, looks at three key resources: metals; phosphorous; and water; and argues that our profligate use of them is both economically and environmentally unsustainable.

On metals, for example, the Green Alliance notes that out of 60 metals analysed by the United Nations Environment Programme, only 18 had end-of-life recycling rates of more than 50%, and over half, including 14 rare earth metals, had recycling rates of less than 1%. It also highlights the growing problem of diminishing returns from mining metal ore, saying that copper ore mined at the beginning of the 20th century contained about 3% copper, but typical ore now contains only 0.3%.

The environment think-tank wants improved recovery rates and claims the existing producer responsibility regimes,



EU must safeguard use of key resources, says Potočnik

such as for waste electrical and electronic equipment, batteries, end-of-life vehicles and packaging, are failing, with many valuable metals not being recovered. Only 3% of people return mobile phones for recycling or reuse, says the report. It advocates a range of rewards and incentives to boost recycling and recovery.

The manufacturing body EEF also wants to see better recycling and recovery of valuable materials, but says that will only happen if the UK invests in establishing appropriate waste management facilities.

Its new report, *Ascending the waste hierarchy*, says the UK currently lacks facilities to manage some wastes, making recycling and recovery expensive. The EEF gives the recovery of valuable metals contained in the dust from flue gas cleaning filters as an example, explaining that recovery facilities exist on the Continent, but not in the UK, forcing domestic manufacturers to ship their waste overseas, which adds to the cost and regulatory burden.

The Green Alliance and EEF reports follow one from the Associate Parliamentary Sustainable Resource Group, which concludes that the UK's waste management infrastructure needs £8 billion of investment by 2020 to meet EU Directives and cut the amount of waste going to landfill.

nqa.

IEMA
CONFERENCE 2012
15th-16th NOVEMBER
Savoy Place, London
VISIT US ON
STAND 16
IN THE LANCASTER ROOM



**Continually
improve
your energy
performance
with ISO 50001**

**Max Linnemann,
Environment Sector Manager,
NQA**

delivers a **special**
IEMA Conference Session
on the **new**
Energy Management System
ISO 50001,

its origin and how this
compares with **ISO 14001**
at **13.30** on the
15th & 16th of November.

08433 085383
enquiries@nqa.com
www.nqa.com/50001

IN PARLIAMENT

European leadership?



Chris Davies is the Liberal Democrat environment spokesman in the European Parliament

The EU's chief climate change negotiator has given MEPs a gloomy assessment of prospects for the latest round of UN-sponsored talks taking place in Durban later this year. Securing a legally binding international agreement, he said, is "not realistic". Many developed nations are distracted by economic problems. Developing nations such as China don't want curbs on their growth. Climate change denial is rampant in the US. And so the world sleepwalks towards disaster.

The Intergovernmental Panel on Climate Change has insisted that the rise in CO₂ emissions must be halted by 2015 if temperatures are not to rise by more than 2°C this century. There is no hope of achieving this. So, should the EU try to lead by example? The bloc is on track to meet its modest Kyoto commitments and has acknowledged the need to reduce emissions by 80–95% against 1990 levels by 2050. Yet it is only committing to reducing them by 20% by 2020. Now the commission has published a "roadmap" to the 2050 target, setting milestones along the way, such as a 40% reduction by 2030.

If adopted, it will provide the basis for agreement on specific policy proposals. But adoption is far from certain. In the Council of Ministers it is currently blocked. I have the task of drafting the European Parliament's response. To try to secure the support of MEPs I will point to the urgency of giving industry clear direction about the priorities for long-term investments. I will remind them that Europe risks being overtaken by the Far East in the development of green technology. And I will tell them that greater energy efficiency is simply good sense.

A vote in favour will count for little unless member states also endorse it. But a vote against risks destroying the EU's resolve to tackle climate change. It would be a damning blow.

New reporting standards

Reporting Two new greenhouse-gas (GHG) reporting standards have been unveiled by the GHG Protocol. The benchmarks – the corporate value chain (scope 3) and product life cycle standards – aim to help firms to better understand and measure their climate impacts beyond their own operations.

"The new standards provide companies with a comprehensive view of the emissions produced when making a product and across the value chain.

"They will help companies make better business decisions and stimulate innovation in products and production methods," said Björn Stigson, president of the World Business Council for Sustainable Development, which developed the standards with the World Resources Institute (WRI).

The corporate value chain standard provides a method for measuring supply chain GHG emissions, while the product life cycle standard supports the measuring of emissions from individual products.

Janet Ranganathan, vice-president for science and research at the WRI, said the standards had been "road tested" by 60 firms in 17 countries, and gave the example of how piloting the scope 3 standard had helped Kraft identify that 93% of its

emissions were from its supply chain, with 70% of those from the production of raw materials such as coca beans.

Frank Appel, CEO at Deutsche Post DHL, described the scope 3 standard as a "major milestone" with companies now able to adopt the same standards. Other companies involved in testing the scope 3 standard endorsed the methodology.

"Our road test of the new standard provided us with key data to drive our strategic business decisions regarding GHG emissions," said Kelly Semrau, vice-president of global corporate affairs, communication and sustainability at SC Johnson.

Ranganathan called on industry associations to encourage member companies to use the standards as Helen Fleming, climate change director at Tesco, confirmed that the board of the Consumer Goods Forum is recommending that its 400 member firms adopt the product life cycle standard.

Meanwhile, the Carbon Trust has become the first organisation to offer a service certifying the product life cycle standard. It advises companies to use the new standard in combination with its carbon reduction label to robustly communicate product carbon footprints.

Green businesses scoop Scottish awards

Awards Transport operator First Scotland East and leaflet marketing firm EAE have been named as two of Scotland's most sustainable organisations, after being awarded top prizes at the 2011 Scottish Green Awards.

Now in their third year, the annual awards recognise organisations and individuals that have worked to improve the environment in Scotland.

First Scotland East triumphed in the large company category for its approach to cutting carbon emissions from its fleet, which includes an innovative driver-monitoring system that has helped improve the efficiency of its staff's driving, cutting fuel consumption by 4.5%.

"It's a real honour to win this award and the credit goes to all our drivers, engineers and cleaners who have really bought into the process and made the change in our company," said Paul Thomas, managing director of First Scotland East, when collecting the award.

Meanwhile, EAE was recognised as the best green small business for its efforts to become carbon neutral by 2015, which has seen it cut emissions by 60% through initiatives such as introducing Scotland's first electric leaflet-delivery van. "We've started down this path to carbon neutrality and I don't know if we'll make it, but if we keep trying continuously to improve maybe we can get there," said Glenn Bennett, managing director of EAE.

Other winners include the North Howe Transition Toun scheme, which was named as the best green community initiative, and Changeworks, a charity that helps individuals improve the energy efficiency of their homes, which was awarded the prize in the public service category.

"It is really encouraging to see such commitment and innovation in tackling major environmental challenges in a positive way," said Martin Baxter, IEMA director of policy and a judge for this year's awards.



"It's all about meeting the needs of our customers. My team are always on hand to provide advice and guidance and make the necessary practical arrangements too."

Kayley, RRC Customer Services Manager

NEBOSH and IEMA Environmental Training from RRC

RRC have been developing and delivering first class training for over 80 years and our reputation speaks for itself. Whether you're an individual looking to further your career or an organisation looking to train your staff, you won't find expertise greater than ours. We work hard to make training as easy as possible and we are always thinking of new ways to make our courses effective and enjoyable. Our tutors are highly experienced, friendly and approachable and our dedicated Customer Services team back this up with excellent support.

RRC Environmental Courses



IEMA Accredited Courses

- IEMA Introduction to Environmental Management Systems
- IEMA Foundation Certificate in Environmental Management
- IEMA Associate Certificate in Environmental Management

All available throughout the world by e-Learning and Distance Learning
Online assessment available.



NEBOSH Accredited Courses

- NEBOSH National Certificate in Environmental Management
 - NEBOSH Diploma in Environmental Management
- Face-to-Face Training in London and Bahrain

Distance Learning and e-Learning with exam venues throughout the world



In company Training

We deliver training at a venue of your choice. Accredited courses available as well as bespoke training to meet the specific needs of your organisation.

RRC Training
27-37 St George's Road
London SW19 4DS

Telephone:
+44 (0)20 8944 3108
E-mail: info@rrc.co.uk



www.rrc.co.uk

Short cuts

One Welsh watchdog

A single environment body replacing the Environment Agency Wales, the Countryside Council for Wales and Forestry Commission Wales, could be operational as early as April 2013, according to the Welsh Assembly government (WAG). Following a consultation last year, which proposed that a single body should take responsibility for delivering the WAG's natural environment framework, the government has revealed that combining the three existing bodies could deliver more than £100 million of savings. A recent WAG progress report reveals that a detailed business case for the single body will be sent to ministers in November, with a policy consultation expected to follow in early 2012.

Radioactive seas

The Scottish Environment Protection Agency (SEPA) has decided not to continue funding the complete decontamination of the sea around the Dounreay nuclear power station, which is in the process of being decommissioned. In 1998, following the discovery of sea bed contamination near the plant, SEPA recommended that the area be returned to a "pristine condition". At the agency's September board meeting it was agreed this was no longer a realistic objective, and might actually be detrimental. It is now understood that large-scale disruption of the sea bed and near-shore environment to retrieve the greater proportion of all radioactive particles, including minor ones that are not now assessed as posing a threat to human health, would have the potential to cause more harm to the environment than good. This disruption runs contrary to the requirements of the EURATOM Basic Safety Standards 96/29 and would exceed the requirements of the Radioactive Contaminated Land (Scotland) Regulations, says SEPA, adding that a literal return to a pristine condition is neither practical nor appropriate. Instead, it is adopting a selective and targeted approach.

Shale gas find 'threatens' the UK environment

Energy The discovery of huge reserves of shale gas in Lancashire has heightened fears that its extraction may pollute water sources, worsen greenhouse-gas emissions and choke off investment in renewable energy.

Cuadrilla Resources, which has been exploring the potential for commercial shale gas extraction in the Fylde coast region, says that its test drilling reveals that up to two trillion cubic feet of gas lies underground – enough to supply Britain's current demand for the next 50 years. Only a small proportion is likely to be recoverable, however.

Shale gas is natural gas that is found trapped underground in shale rock and is extracted using a technique called hydraulic fracturing or "fracking" (lexisurl.com/iema11043), which involves pumping millions of gallons of water, sand and chemicals into fractures in the shale under high pressure. The process is widely used in the US, but is controversial, with some states banning the process following allegations that it causes water pollution.

The WWF wants a moratorium on shale gas exploration in the UK until the

risks to groundwater have been properly explored. "There has still not been enough research into the issue of water contamination by shale gas extraction," says Jenny Banks, energy and climate change policy officer at WWF UK.

Another fear is that the discovery of shale gas will fuel a second "dash for gas", with more gas-fired power stations built. Although gas stations using conventionally sourced natural gas emit roughly half as much CO₂ per kWh as coal-fired plants, research published earlier this year found that shale gas releases more methane into the atmosphere, thus potentially leaving a larger greenhouse-gas footprint than coal.

Support for gas-powered stations may also impede development of renewable energy projects. In June, the International Energy Agency (IEA) warned that a dash for gas could undermine demand for renewable energy.

"While natural gas is the 'cleanest' fossil fuel, it is still a fossil fuel. Its increased use could muscle out low-carbon fuels, such as renewables," warned IEA executive director Nobuo Tanaka.

CO₂ performance key for suppliers

Strategy Large companies will increasingly use only suppliers that are reducing their carbon footprint, according to research by the Carbon Trust.

The poll of 100 senior managers in multinational firms reveals that half will use a carbon performance metric to select suppliers in the future, with more than one-quarter (29%) claiming they will stop using suppliers that do not provide adequate performance records on their carbon emissions.

More than half (56%) of respondents from UK-based multinationals say that in the future they expect to drop suppliers with a poor carbon performance, although just 28% of US companies anticipate deselecting suppliers on that basis.

Pressure from shareholders is behind the drive to use only suppliers that are effectively addressing their emissions, finds the survey, adding that this influence will intensify. "Going forward, as carbon becomes more widely understood as

a commodity, there will be increasing pressure on companies from external sources, particularly shareholders, to address the carbon-intensive area of supply chain emissions," says Hugh Jones, managing director of the Carbon Trust Advisory, which helps companies to harness opportunities and manage the risks of moving to a green economy.

The latest data from the Carbon Disclosure Project underline the importance the world's biggest companies now place on securing reductions in emissions. The 2011 Global 500 report reveals that 68% of the 396 companies supplying information have put climate change at the heart of their business strategies, compared with 48% in 2010. There is also a marked rise in the number of firms reporting reduced emissions – 45%, up from 19% in 2010.

Retailer Tesco is the only UK company in the top 10 best-performing companies in this year's Global 500.

Ministers say countryside will be protected by NPPF

Planning David Cameron and planning minister Greg Clark have been forced to give reassurances that the efforts to streamline planning legislation will not endanger greenfield sites as the consultation on the reforms closed.

Responding to widely publicised criticism of the draft national planning policy framework (NPPF) and its ability to protect the UK's countryside from development, Clark conceded that the use of the phrase "land of least environmental value" rather than "brownfield site", may have added to concerns. "It certainly was not the government's intention to depart from the obviously desirable situation in which derelict land should be brought back into use," he said.

Meanwhile, the prime minister, in a letter to the National Trust, argued that the reforms would maintain protections for green-belt sites, national parks and areas of outstanding natural beauty. "Our aim is to secure a planning system that supports growth and prosperity and protects the interests both of today's communities and of generations to come," he said.

However, many remain critical of the proposals, which see between 1,300 and 3,000 pages of planning legislation and guidance replaced with



a 52-page document that puts much of the responsibility for planning decisions on local authorities.

The Chartered Institution of Water and Environmental Management labelled the NPPF a builders' charter. "A new planning framework is an opportunity to do things better. But, sadly, this government's proposals are little more than a sop to the powerful construction lobby," said CIWEM's executive director Nick Reeves.

"To enable development that is sustainable, planning policy must effectively reconcile the aspirations of developers while operating within environmental limits," said Martin Baxter, IEMA director of policy. "In its current form the NPPF fails to provide this."

Retailer fined £185k for illegal landfills

Prosecution Trago Mills, a well-known discount retailer in the South West, has been fined £185,000 for illegally dumping and burning thousands of tonnes of waste at two of its out-of-town shopping complexes.

An Environment Agency (EA) investigation in 2009 revealed that the company had dumped more than 6,000 tonnes of waste, including hazardous materials such as asbestos, in illegal landfills in the Devon countryside and unlawfully burned more waste at its centre in Cornwall.

Torquay Magistrates' Court heard how, over a substantial period of time, staff at the Newton Abbot store had thrown unsold stock and discarded equipment, along with plastic, concrete, electrical goods, pots of paint, chemicals and 200 sheets of asbestos, onto dumps at the site.

Meanwhile, separate inspections at the Liskeard store revealed stockpiles of waste wood, rubble and packaging in a valley near the River Fowey and an area of 20m by 10m where waste, including tyres and plastics, had been burned, leaving ash that in places reached waist height.

"The company had recycling schemes in place, but avoided costs by illegal dumping," said Dave Brogden for the EA.

Trago Mills pleaded guilty to five offences of illegally disposing of waste under the Environment Protection Act 1990, but maintained that senior managers at the firm did not know of the breaches. "The board of directors, who are based at the Liskeard head office, were unaware that the established waste-disposal protocols had been deviated from under a senior manager who is no longer with the company," said the firm's statement.

Short cuts

Threat of biomass

The government is being urged to reassess the role of biomass in the UK's future energy mix, as one organisation warns that the entire UK forest harvest could be consumed by just three electricity-generating plants. Karl Morris, managing director of wood-panel manufacturer Norbord, cited a draft report by the Scientific Committee of the European Environment Agency stating that the assumption that bioenergy is carbon neutral is flawed. "The government has failed to take note of the wood-panel industry's concerns," said Morris. "Surely, if the EU's environmental watchdog is expressing similar concerns, the time has come to pause and reconsider the headlong rush to biomass energy." Morris's claims followed the announcement that a third large-scale biomass plant has been granted planning permission. About one million tonnes of biomass is currently burnt or co-fired in UK power stations each year, but expansion plans could see demand for biomass soar to 60 million tonnes a year.

New approach to f-gases

The European Commission has launched a consultation asking for feedback on draft policy measures to tackle the creation of fluorinated gases (f-gases). The move came after a review concluded that existing EU legislation would not cut emissions of the potent greenhouse gases in the long term. Connie Hedegaard, commissioner for climate action, confirmed that although the 2006 EU Regulation on f-gases (842/2006) has had an impact on their production, the increasing use of air conditioners and refrigeration mean that emissions will remain at today's levels. The proposed measures include a ban on new products and a scheme for phasing down the placing of hydrofluorocarbons on the EU market. The consultation will run until 19 December and Hedegaard has confirmed that new legislative measures will follow in 2013 (lexisurl.com/iema11045).

Chancellor backtracks on green goals

Government George Osborne has signalled a watering-down of government climate change policy by ruling out unilaterally setting carbon emissions targets that other countries refuse to adopt. He also accused environmental regulations of “piling costs on the energy bills of households and companies”, and argued that the government should not adopt green targets that damage the business sector.

“We’re not going to save the planet by putting our country out of business,” the chancellor said at the Conservative Party conference in Manchester. “So let’s, at the very least, resolve that we’re going to cut our carbon emissions no slower, but also no faster, than our fellow countries in Europe.”

Osborne claimed to have insisted that the UK’s commitment on emissions reductions would not outstrip the rest of the EU as part of the recent agreement to endorse the Committee on Climate Change’s fourth carbon budget, which commits the UK to halving emissions against 1990 levels by 2025 (lexisurl.com/iema11046).



Osborne: we should not adopt targets that damage business

The chancellor’s intervention is at odds with government policy. Under the Climate Change Act 2008, the government has a legal obligation to reduce emissions in line with the approved carbon budgets. The budgets to 2022 commit the UK to reducing emissions by 34% against 1990 levels, but the EU is pursuing only a 20% reduction by 2020.

His speech follows new analysis by environmental bodies of the government’s

progress towards fulfilling its “greenest government” pledge. It finds that the government has made either moderate or no progress on 22 of its 29 low-carbon commitments. It also claims there are clear indications that the Treasury and, to a lesser extent, the business department, have curbed, or attempted to curb, the coalition’s ambition on the low-carbon agenda.

The research, by an alliance of environmental groups, including the Green Alliance and WWF, concludes that seven commitments, such as reducing emissions from central government departments, have been delivered successfully or are achieving good progress. Six policies are ranked as failing, including support for green financial products, reform of aviation taxation and a shift to green taxation.

Progress on the remaining 16 policies is rated as moderate, but they risk ending up in the “failing” category without urgent intervention to speed up delivery and raise the level of ambition of the policy response, says the report.

CASE LAW

Turbine turbulence

In August 2011, the High Court dismissed a challenge to a planning permission – granted on appeal – for the erection of two wind turbines on a site 5km from the Morecambe Bay Special Protection Area (SPA). The challenge was brought by Mr Hargreaves in relation to the successful appeal by Cornwall Light and Power (CLP).

The main points of the challenge alleged that: (i) the secretary of state had erroneously concluded that the development did not require an environmental impact assessment (EIA); (ii) the inspector should have referred that issue back to the secretary of state before determining the appeal; and (iii) the development required appropriate assessment under the Habitats Directive and Regulations, because of the effect of the scheme upon the SPA. The challenge was rejected on all grounds.

The SPA hosts a number of bird species, including geese. The geese commute inland up to 10km from their coastal roosting sites to feed, with many

feeding in fields adjacent to the proposed development site. It was estimated that up to 50 geese a year would collide with the wind turbines if the development were to proceed. There were also other concerns, including noise and shadow flicker, and landscape and visual impacts.

In both 2008 and 2009, planning applications were refused because of the potential impact on the geese and the adverse visual impact. Concerns were raised by Lancashire County Council, in its capacity of advising the local planning authority, and Natural England because of the potential effect on the geese.

In 2010, CLP appealed to the secretary of state, submitting its “Goose Mitigation Agreement” (GMA). A planning inspector was appointed to conduct the appeal. The CLP scheme suggested maximising goose feeding areas. Natural England said that the scheme was acceptable subject to it being tied to a legal agreement. CLP requested a screening direction under reg. 9(1) of the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 –

before submitting a planning application, potential applicants can apply for an opinion on whether a development should be subject to an EIA. The inspector returned a negative screening direction, concluding that the likely impacts were not sufficiently significant to warrant an environmental survey. Debate centred on the exact interpretation to be accorded to “significant impact”.

The secretary of state subsequently ruled that it was not an EIA development, allowing CLP’s appeal, and, subject to various conditions, granting planning permission. Hargreaves challenged the decision, alleging that the inspector had acted unlawfully or irrationally in failing to remit the negative screening direction for reconsideration or in granting planning permission.

Conservationists will not welcome the result of this case, but the GMA signals a greater emphasis towards the careful siting of such facilities in order to account for bird flight paths.

Colleen Theron and Deirdre Lyons, LexisPSL

“We’ve got an ‘APP’ for that!”



With the world’s leading technologies, Quantitech can deliver bespoke monitoring solutions to precisely meet your needs

Research

Detect and measure almost any gas

Process Monitoring

FTIR multigas
Dioxins, Furans,
Hydrogen

Ambient Air Monitoring

Leak Detection, Workplace
Exposure, Incident Response,
Security

Stack Monitoring

Multiparameter FTIR
(fixed or portable)
Combustion gas analysis

Quantitech’s bespoke FTIR multiparameter gas analysers from Gasmet are configured with APPLications to meet the monitoring needs of each customer.

Just tell us which gases you want to measure and we will deliver an ‘APP’ with your analyser so that you can!

Other Technologies: FID,
Chemiluminescence, GC-IMS,
InfraRed, NDIR, Paramagnetic Oxygen,
Specific Hydrogen, Particulate Sampling,
Dioxins/Furans Sampling



QUANTITECH

Call Quantitech on: **01908 227722** or visit us: **www.quantitech.co.uk**

professional indemnity & liability insurance

Arranged by S-Tech, IEMA preferred broker

Our well established Professional Indemnity policy can now be extended to include Employers and Public liability cover at attractive rates. Our policy is specifically designed for Environmental Consultants, Auditors and other environmental professionals. The cover includes:

- Pollution and contamination claims
- Sub consultants and specialist consultants
- Joint Venture or Consortium cover
- Legal Defence costs
- Instalment facilities for premium payment
- Employers and Public Liability

S-Tech

iema
Institute of Environmental
Management & Assessment

If your policy is due for renewal please call for a quotation or let us know your renewal date and we will contact you for a review.

S-Tech Insurance Services Ltd, 154-156 Victoria Road, Cambridge CB4 3DZ
t: 01223 324233 e: tim@s-tech.co.uk w: www.s-tech.co.uk

S-Tech Insurance Services Ltd is authorised and regulated by the Financial Services Authority



Looking for a product or solution to your **business problems?**



Make sure you visit Supplier Hub

Visit www.supplierhub.co.uk/compliance

Supplier Hub is an **online business services directory** that is designed to provide an extensive database of products and services essential to environmental professionals, giving them immediate access to the resources they need.



**Cambio
Environmental Ltd
Training & Consultancy**

- Integrated Professional Development programme leading to multiple qualifications
- Accredited by IOSH, IEMA and NEBOSH
- e-Learning, Face to Face courses or a combination of both
- Envious pass rates on all programmes

Booking now open for e-Learning modules launching in November.

We offer the longest running integrated environmental qualification programme in the UK, giving you the opportunity to study at a location, pace and style that suits you.

Foundation level qualifications

IOSH Managing Environmental Responsibilities
IEMA Foundation Certificate

Intermediate level qualifications

Nebosh Certificate in Environmental Management
IEMA Associate Certificate

Advanced level qualifications

Nebosh Diploma in Environmental Management
Advanced Environmental Practitioner course

- 5-day block release format for Face to Face courses with start dates throughout the year;
- a wide choice of public course venues and dates;
- e-Learning Modules that interface with the Face to Face programme to enable blended learning styles;
- transfer with credit from comparable programmes;
- in company delivery options.

e-Learning programme launch

From November 2011 you can choose to study all or part of your IEMA and NEBOSH accredited courses in an e-Learning format.














Unlike old-style distance learning or more recent computer based training, with the Cambio e-Learning programme you will not be expected to do everything in isolation. We will support you via timely reminders, on-line tutorials, study group networks and a dedicated course tutor.

You'll get the benefit of our 13 years of delivering classroom based training without having to leave your desk! To find out more visit our website or call Julia Hill.



Call 01873 890819 or visit www.cambio-uk.com for course venues, dates and details

NEW REGULATIONS

In force	Subject	Details
15 August 	Transport	European Commission Regulation 725/2011 establishes a procedure for the approval and certification of innovative technologies for reducing CO ₂ emissions from passenger cars pursuant to Regulation 443/2009, which sets emission performance standards for new cars. lexisurl.com/iema10985
1 September 	Energy	The Renewable Heat Incentive (Amendment to the Energy Act 2008) Regulations 2011 amend s.100 of the Energy Act 2008, changing the definitions of “biogas” and “biomass” contained in subsection (3) and modifying the list of sources of energy and technologies set out in subsection (4) to include biogas (see p.4 for the latest on the RHI). lexisurl.com/iema10986
1 October (12 August)  	Environmental protection	The Environmental Permitting (England and Wales) (Amendment) Regulations 2011 amend the 2010 Regulations. Changes include substituting Schedule 23 to provide a modernised and transparent framework for the regulation of radioactive substances and implementing amendments relating to carbon capture and storage. Most of the provisions came into force on 1 October, except regs. 2, 3, 12 and 14, which came into force on 12 August. lexisurl.com/iema10987
1 October 	Environmental protection	The Single Use Carrier Bags Charge (Wales) (Amendment) Regulations 2011 amend the 2010 Regulations. Changes include ensuring the 5p charge includes VAT. lexisurl.com/iema10988
1 October  	Environmental protection	The Wildlife and Countryside Act 1981 (Variation of Schedules 5 and 8) (England and Wales) Order 2011 varies Schs. 5 and 8 to the Wildlife and Countryside Act 1981. lexisurl.com/iema10989
1 October 	Planning	The Infrastructure Planning (Changes to, and Revocation of, Development Consent Orders) Regulations 2011 set out procedural provisions in respect of applications under Schedule 6 to the Planning Act 2008, which concerns changes to, and the revocation of, orders granting development consent after they have been issued. The Regulations also provide for the payment of fees for such applications. lexisurl.com/iema10990
1 October   	Planning	The Planning Act 2008 (Commencement No.7) Order 2011 brings into force key provisions of the Act, mainly in England and Wales, but also in Scotland, so far as they are not already in force. The provisions cover nationally significant infrastructure projects (s.14); hazardous waste facilities (s.30); and Schedule 6 changes (above). lexisurl.com/iema10991
1 October (1 December) 	Planning	The Town and Country Planning (General Permitted Development) (Amendment) (England) Order 2011 amends Part 40 of Sch. 2 to the Town and Country Planning (General Permitted Development) Order 1995 and relates to the installation of electric vehicle charging points and certain microgeneration equipment. Article 2(2) creates permitted development rights for the installation, alteration or replacement of electric vehicle charging points in off-street car parks and came into force on 1 October. Article 2(4) confers permitted development rights for the installation of specified types of microgeneration equipment and comes into force on 1 December 2011. The Town and Country Planning (Compensation) (England) Regulations 2011 revoke the 2010 Regulations and concern the payment of compensation in certain cases where planning permission is withdrawn. Regulations 2(f) and 6 come into force on 1 December 2011. The Town and Country Planning (Control of Advertisements) (England) (Amendment) Regulations 2011 place controls on the display of advertisements. lexisurl.com/iema10992 ; lexisurl.com/iema10993 ; lexisurl.com/iema10994
1 October 	Hazardous substances	The Radioactive Substances Act 1993 (Amendment) Regulations (Northern Ireland) 2011 amend the Radioactive Substances Act in order to align it more closely with the structure and terminology used in the Basic Safety Standards Directive. In addition, the Radioactive Substances Exemption (Northern Ireland) Order 2011 revokes and replaces a series of exemption orders made under the 1993 Act. lexisurl.com/iema10995 ; lexisurl.com/iema10996

LATEST CONSULTATIONS

1 November

Waste

 The Environment Agency has published draft guidance for installations and mobile plants that undertake thermal desorption – a remediation technology that uses heat to increase the volatility of contaminants so they can be more easily removed or separated. Thermal desorption is a Part A(1) activity listed in Schedule 1 of the Environmental Permitting (England and Wales) Regulations. The draft guidance aims to set out the additional indicative best-available-techniques requirements that it expects regulated facilities to meet for these activities. Stakeholders are invited to comment on the draft. [lexisurl.com/iema10997](https://www.lexisurl.com/iema10997)

11 November

Biodiversity


 Defra has issued a technical discussion document on developing indicators for tracking progress against the new strategy for England's wildlife and ecosystem services, entitled *Biodiversity 2020*, which was published on 19 August ([lexisurl.com/iema11047](https://www.lexisurl.com/iema11047)). Defra says monitoring is necessary because the Convention on Biological Diversity, agreed in Nagoya in 2010,

requires signatories to use indicators to report progress towards its goals and targets at the national level, and to provide a means of synthesising and communicating complex information to a broad audience, allowing a wide range of organisations and individuals to judge progress for themselves.

[lexisurl.com/iema10998](https://www.lexisurl.com/iema10998)

25 November

Reporting

 The business department BIS has issued a second consultation on revising the narrative-reporting framework for quoted companies as it aims to increase the quality of social and environmental reporting. The aim is to help shareholders, investors and other stakeholders find relevant information quickly and easily. The government is proposing that companies prepare a "strategic report" that includes key environmental data and a forward-looking analysis by the directors of the challenges and opportunities that they face. It will also incorporate the content from the business review that is required by the Companies Act 2006. The consultation document says including environment issues in the strategic report will ensure the information is considered

alongside the analysis of the company's strategy and risks – the result being an integrated report demonstrating, where relevant, the links between these issues. The government recently consulted on the mandatory reporting of greenhouse-gas emissions, and BIS says that any introduction of such an obligation will be integrated into the new narrative reporting framework. The government has also confirmed that it is committed to providing business with new guidance that will help them measure and report their corporate environmental impacts. [lexisurl.com/iema10999](https://www.lexisurl.com/iema10999)

9 December

Transport

 The European Commission has published a consultation document seeking views on the EU strategy and options for reducing CO₂ emissions from road vehicles. The EU roadmap for moving to a competitive low-carbon economy by 2050 ([lexisurl.com/iema11000](https://www.lexisurl.com/iema11000)), which was published earlier this year, estimates that transport-sector emissions will need to be cut by 50–70% by the middle of the century. The consultation focuses on achieving the cuts at the lowest cost. [lexisurl.com/iema11001](https://www.lexisurl.com/iema11001)

NEW GUIDANCE

Environmental permitting

Defra has updated its core guidance ([lexisurl.com/iema11002](https://www.lexisurl.com/iema11002)) on the Environmental Permitting (England and Wales) Regulations 2010. The latest version (3.2) updates guidance originally produced for the 2007 Regulations. It explains how the government and the Welsh Assembly government expect the Regulations to be applied and how particular terms should be interpreted in England and Wales.

Civil sanctions

The Environment Agency has issued a quick guide to civil sanctions ([lexisurl.com/iema11003](https://www.lexisurl.com/iema11003)), which it has been able to levy since the start of the year. The guide provides details on the areas where civil sanctions can be used – packaging, oil storage, water pollution, dangerous substances, land drainage, nitrate pollution, hazardous waste, fisheries and sludge – as well as the process for using them. There are also links to sources of further information.

Heat recovery

A guide to heat recovery ([lexisurl.com/iema11005](https://www.lexisurl.com/iema11005)) and how it can be applied to the various systems and processes carried out in businesses has been produced by the Carbon Trust. Heat-recovery techniques can significantly reduce energy consumption, running costs and carbon emissions, says the trust, which also advises adopting these techniques as part of an overall strategy to reduce energy, cost and carbon emissions. Interested parties can also access a webinar on heat recovery ([lexisurl.com/iema11006](https://www.lexisurl.com/iema11006)) that first aired on 8 September and which focuses on appropriate systems for light industrial facilities and warehouses.

Capital allowances

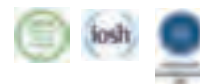
DECC has issued a revised list ([lexisurl.com/iema11007](https://www.lexisurl.com/iema11007)) of equipment that qualifies for enhanced capital allowances (ECAs). The allowances enable businesses to claim 100% first-year capital allowances on spending on qualifying plant and machinery. There are three schemes for ECAs: energy-saving plant and machinery, as defined by the Energy Technologies List ([lexisurl.com/iema11008](https://www.lexisurl.com/iema11008)); low-CO₂-emission cars and natural gas and hydrogen refuelling infrastructure; and water conservation plant and machinery.

EVENTS CALENDAR

Date	Course	Location and details
9–10 November 2011	Motor-driven systems	St Johns Hotel, Solihull lexisurl.com/iema11009
15–16 November 2011	IEMA sustainable business: environmental professionals driving change	Savoy Place, London lexisurl.com/iema10692
15–16 November 2011	Corporate responsibility reporting and communications summit 2011	London lexisurl.com/iema11010
17 November 2011	Climate change and the water sector: integrating adaptation and mitigation in practice	School of Oriental and African Studies, University of London, London lexisurl.com/iema11011
23 November 2011	Catchment delivery: towards more effective environmental and societal benefits	School of Oriental and African Studies, University of London, London lexisurl.com/iema11012
23–24 November 2011	Future world of biogas: Europe 2011	London lexisurl.com/iema11014
28–29 November 2011	How to manage supplier social and environmental performance	Regent's Park Marriott Hotel, London lexisurl.com/iema11015
6–7 December 2011	The sustainable finance summit 2011	Novotel St Pancras, London lexisurl.com/iema11016

Get ahead of the rest with up to **20% OFF IEMA** courses**Santia is the UK's largest provider of IEMA Certificate courses.**

- IEMA Associate Certificate in Environmental Management (E-learning Version - coming soon)
- IEMA Foundation Certificate in Environmental Management
- IEMA Environmental Awareness
- Courses are held at venues across the UK
- In-company training to suit your needs and budget

Don't miss out on this excellent opportunity to get qualified.

To reserve your place call:

0808 100 26 89

training.enquiries@santia.co.uk

www.santia-training.co.uk/promotion**Book now while places are still available!**This offer is **only** available until **31 December 2011**

It's fresh thinking from **santia**
Health & Safety Risk Management

Bhopal's never ending disaster

Richard Ansell and **Andrew Tinsley** revisit the gas tragedy, 26 years after the explosion at the Union Carbide plant in India became the world's worst industrial disaster

Bhopal is a city of 1.5 million people situated in the heart of India, halfway between Delhi and Mumbai, and is the capital of the state of Madhya Pradesh. It is also the location of the world's worst industrial disaster.

The Bhopal tragedy of 1984 has killed thousands of people and continues to affect many thousands more. Protracted, complex international litigation between India and the US has contributed to the fact that, more than 26 years later, the site has still not been remediated. There is now a significant, growing body of evidence demonstrating that this is causing substantial harm to the local population through toxic contamination of the land and the local groundwater.

The Union Carbide India plant at Bhopal was built in 1969. It was 50.9% owned by the US-based Union Carbide Corporation (UCC), with the rest owned by a range of Indian financial institutions and private investors. As the majority shareholder, UCC had ultimate control over the design, maintenance and operation of the plant, which was to produce a number of pesticides with the brand names Temic, Sevidol and Sevin. It was based on the design of a UCC plant in the US, but included untested technological elements, such as the management of acid waste residues.

One of the key process chemicals required to produce Sevin was methyl isocyanate (MIC), a highly reactive, toxic and potentially explosive gas. It was mixed with alpha naphthol to produce the active ingredient for both Sevin and Sevidol – 1-naphthyl-N-methylcarbamate, more simply known as carbaryl. The original Bhopal plant produced Sevin using imported MIC but, in 1979, it was extended in order to manufacture MIC locally. Union Carbide state that the plant producing the carbaryl was closed in 1982, before the disaster.

Bhopal's first disaster ...

On the night of 2 December 1984, a large amount of water entered tank 610 containing approximately 40 tonnes of MIC. When MIC is mixed with water it undergoes a rapid exothermic reaction. This caused an explosion that ruptured the containment system and released a deadly gas cloud over the city.

MIC is a highly toxic substance, 500 times more poisonous than cyanide, and reportedly five times more noxious than the phosgene gas used in World War I. The Indian Council of Medical Research estimates between 8,000 and 10,000 people died that night, and by 1994 more than 25,000 people had died as a result of exposure. It also estimates a further 500,000 people were affected by the gas, and about 150,000 people still suffer chronic effects from exposure.

Union Carbide has always claimed that the release of MIC was the direct result of sabotage by an unnamed, disgruntled worker who deliberately introduced water into the tank. Union Carbide's Bhopal information page states: "An independent investigation by the engineering consulting firm Arthur D. Little determined that the water could only have been deliberately introduced into the tank, since safety systems were in place and operational that would have prevented water from entering the tank by accident."

Independent observers, victims, the Indian Central Bureau of Investigation and former site workers, however, blame safety cutbacks and management failures for the disaster that ultimately allowed wash water to enter the tank through faulty pipework and isolation valves. In the months leading up to the gas disaster there were various failures of equipment, and, it is claimed, workers were sent to work at the MIC plant with inadequate training.

A 1994 book – *Bhopal: The inside story* – by a former Union Carbide worker and MIC plant operative, TR Chouhan, reveals how warnings from safety audits were ignored. It states the lack of training of site personnel, reduced maintenance regimes and poor management practices ultimately led to the disaster. More importantly, it details technical facts, explaining that had there been capacity in the spare tanks, and had the refrigeration systems for the MIC tank, the alarms, the flare tower and the vent scrubber been functioning properly then the potential gas release would have been found, substantially reduced and remediated at source.

In 1989, the Indian Supreme Court approved a sum of \$470 million in full and final settlement of all claims and criminal proceedings to the disaster. A legal petition to enhance compensation is due to be heard shortly, seeking additional damages of \$60 million as, among other things, the original settlement underestimates victim numbers.

Union Carbide, which became a wholly owned subsidiary of Dow Chemicals in 2001, has chosen not to provide comment for this article, but it does provide a list of frequently asked questions and related documents on its website (lexisurl.com/iema11038).

... and second

There is growing recognition of a separate tragedy that is driving a new wave of international interest in the Bhopal site. When the design of the plant was drawn up in the 1960s, the lack of a river for disposal of plant effluent posed a potential design problem for UCC. Two designs were possible: incineration of the acid hydrocarbon and plant residues or neutralisation with lime, evaporation and subsequent landfilling of sludge. UCC chose the second option. Initially, the sludge was disposed of in unlined pits. Later, solar evaporation ponds (SEPs) were constructed, away from the main site. The ponds were insufficiently lined and the liners were reported to have been breached within four years of operation, partly due to the native "black cotton soil" being used in their construction, which – like many soils in monsoonal areas – expands significantly when wet and contracts and cracks when dry.

Suspensions that discharges from the plant could be poisoning the local groundwater were raised as early as 1980, well before the 1984 tragedy, when there were reports of cattle dying. In a UCC internal telex, dated 25 March 1982, it was reported that the SEPs had "almost emptied" through lining leakage.

Groundwater contamination was first substantiated in 1990 by tests carried out by the Citizens Environmental Laboratory in Boston. In 1999, a Greenpeace report analysed soil/waste samples from

»
25
thousand

The number of people who had died by 1994 as a result of the explosion



IEMA Sustainable Business: Environmental Professionals Driving Change

Tuesday 15th November - Wednesday 16th November 2011
Savoy Place, London.

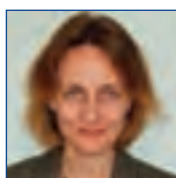
Many challenges are being faced by business and organisations, from the transition to a low carbon economy to understanding the limitations of operating within the natural capacity of the planet.

This IEMA Conference - now less than one month away - will focus on how environmental professionals can play a vital role in helping business and organisations in meeting those challenges and developing sustainable solutions.

Network, share and hear the latest policy, practice and thought-provoking advice from:



Steve Wallace
National Grid



Henrietta Anstey
BAE Systems



Fiona Ball
BSkyB



Paul Turner
Lloyds TSB



Peter White
Proctor and Gamble



Andrew Bloodworth
British Geological Survey



Lucy Shea
Futerra Sustainability Communications



Miles Watkins
Aggregate Industries



Peter Young
Enviros



Richard Aylard
Thames Water



Sara Eppel
Defra



Diana Montgomery
Chemical Industries Association



Helen Woolston
Transport for London



Toby Robins
Wiles Greenworld

- Find out more
- Plan your own programme
- Book online while spaces remain

Sponsored by



iema
Institute of Environmental Management & Assessment

www.iema.net/conference2011

seven locations and water from 12 locations in and near the factory. It identified 12 carcinogenic and toxic volatile organic compounds, many in concentrations far exceeding standards set by the US Environmental Protection Agency, in the water supply for an estimated 30,000 people in the Bhopal area.

The Centre for Science and Environment (CSE) in India performed further tests on groundwater and soil in and around the plant in 2009. The results clearly show the land within the factory site and around the SEPs is highly contaminated with pesticides, chlorinated benzenes and heavy metals. "It is not a case of 'acute toxicity', but of 'chronic toxicity'," said CSE director, Sunita Narain. "The toxic wastes were dumped by the factory when it was functional between the late 1970s and 1984, and when it was shut after the gas leak. These have contaminated the [ground]water."

The CSE also tested groundwater samples from various communities around the site and discovered the concentration of pesticides found in all water samples was between 1.1 to 59.3 times the only mandatory water standard in India, fixed by the Bureau of Indian Standards (IS 14543). The average concentration in all the groundwater samples tested, including those up to 3.5km from the factory site, was found to be 12 times the standard.

"It suggests the groundwater contamination is in fact much more widely spread than previous studies suggested. On that basis, the number of people being affected by this toxic supply must be massively in excess of the previous estimates of 30,000," claimed Colin Toogood of the Bhopal Medical Appeal.

In 2004, the Indian Supreme Court ruled that a safe water system be installed to the affected communities. Today, the water supply – mostly shipped in by tankers – is highly irregular and residents are still forced to resort to the contaminated supply.

The present day

Eight former employees at the MIC plant were convicted (one posthumously) in the Bhopal courts on criminal charges of "causing death by negligence" in June 2010. They received small fines, were jailed for two years, but have served no time in prison as they were immediately bailed.

In May 2011, a petition was heard, and dismissed, by the Indian Supreme Court. The petition had been filed by the Central Bureau of Investigations and aimed to overturn a controversial order from 1996 that had reduced the original criminal charges of culpable homicide, against the Indian officials of Union Carbide, and instituted the lesser charge of death caused by negligence. A second, revised petition to "enhance" the sentences is expected to be submitted shortly.



The rusting hulk of the plant
(inset: mercury in the soil)

The Union Carbide Corporation (US) and its former chair Warren Anderson, who was infamously arrested and bailed in India in 1984, have failed to obey the summons of the Bhopal court and answer the more serious criminal charge of "culpable homicide not amounting to murder".

Anderson was recorded as "absconded" at the 2010 trial and the US refuses to assist with extradition, citing a lack of evidence. Indian environmental legislation introduced since the disaster now clearly places responsibility at the highest board levels as "occupiers" of a licensed chemical production site.

The concentration of pesticides found in groundwater samples taken 3.5km from the former Union Carbide site is 12 times the mandatory Indian water standard

The Indian government has established a "group of ministers" (GoM) to examine all of the issues relating to the Bhopal disaster. Three Indian centres of technical expertise – the National Environmental Engineering Research Institute, the National Geophysical Research Institute and the Indian Institute of Chemical Technology – have submitted papers to the GoM proposing contamination assessment and remediation procedures. However, the data contained in the papers have been criticised, with the degree of independence of consultants and the proposed assessment and remediation procedures questioned.

All of the various groups involved, both governmental and non-governmental, have at least reached one agreed consensus: that all of the available data still fall short of a full site investigation and considerable extra work is required, particularly with regard to groundwater modelling.

BHOPAL FIRST HAND

In April 2011, Andrew Tinsley travelled to Bhopal to see for himself what is happening there. Here is his personal account.

My facilitator, guide and interpreter, Sanjay Verma, is a Bhopal gas survivor. On the night of the disaster he was six months old. As the gas entered their house his sister and a brother wrapped him in blankets and took the only option available. Along with thousands of other people they ran. His parents and five other brothers and sisters were all killed.

My first visit is to the Blue Moon Colony, a bustee (shanty town) located between the solar evaporation ponds and landfill, and separated from the Union Carbide site only by the width of the railway. It is one of the areas worst affected by groundwater contamination. The landfill area is a raised, barren patch of grey earth. It is mid-afternoon and the temperature is now well into the 40°Cs. There is a faint sweet chemical smell coming from the surface of the landfill dirt. The remains of the liner of the landfill can be seen tattered on the side of the slope – it is barely 1mm thick, decayed and inadequate for the task of containment. The surface and sides of the landfill are open to the elements; there is evidence of gullying and erosion from monsoonal rains. More worryingly, there is evidence of recent excavation of the dried sludge from the landfill. I realise that some of what I had taken to be concrete in the walls of the bustee was probably the grey, lime-rich rammed “earth” from the landfill. It is clear from the smell and the lack of vegetation that the landfill area is heavily contaminated.

At the Union Carbide site I meet T R Chouhan, a former site worker and author on the Bhopal disaster. He shows me the abandoned labs – 26 years on, unused bottles of various acids, alkalis and organic solvent chemicals stacked messily beneath the benches and covered in cobwebs, testament to the problems of site clean-up. The lab windows are broken and there are no securable doors to the building. We move on to the sludge treatment area. Chouhan explains that mercury was used as a liquid bearing in the sludge separation unit. The bearings frequently failed, spilling the mercury that can still be readily seen on the ground around the sludge separation columns. He indicates the wide area over which it is now believed to have spread. We approach the rusting hulk of the methyl isocyanate (MIC) plant – a slightly surreal and unnerving experience. That by now familiar heavy chemical smell rises around the sludge plant and MIC plants as the ground heats up in the sun. It is similar to the smell at the landfill site, only much stronger.

Next to the MIC plant is tank 610 – in which the MIC had reacted with the introduced water. Chouhan explains that it was excavated from its concrete jacket after the disaster and found to be intact. During the gas release, pipework around the base of the plant ruptured and the suppression sprays on the tower failed owing to a lack of maintenance and insufficient water pressure. The vent scrubber unit was inadequate as it was only designed for “normal” operations, not the 200 times the amount of MIC it was presented with. The escape of the gas was then inevitable.

Finally, we visit the control room. Many of the dials have now been stripped out, creating calls for parts of the plant to be preserved as a UNESCO Heritage site as a memorial. Beneath a control panel that is labelled for the suppression sprays is an apparently original sticker that can be seen in many industrial control rooms around the world. It simply reads: “Safety is everybody’s business”.

There are currently no firm plans for a full site and groundwater contamination assessment.

The US courts have formally acknowledged that Union Carbide’s liability for present-day environmental pollution is separate and distinct from its liability for the 1984 disaster. In November 2001, the Second Circuit Court of Appeals reinstated all environmental claims “not related to the 1984 Bhopal gas leak disaster including claims for remediation and clean-up of the now abandoned former plant site in Bhopal and its solar evaporation ponds”. The process of legal redress in the US is producing some interesting results, not



Unused bottles of chemicals remain at the derelict site

least the reported discovery of a document containing details that Union Carbide’s scientists carried out bioassay of samples of groundwater in 1989, but were not able to get a fix on the LD50 values for groundwater contaminants (a standardised measure for expressing and comparing the toxicity of chemicals), as they found 100% fish mortality at all the dilutions they tried. This, and the recent convictions in the Indian courts, have now reinvigorated legal claims both in India and the US against Union Carbide, and potentially its new owner Dow Chemicals, concerning compensation for victims affected by contaminated drinking water and seeking full remediation costs for the site.

Given past history, it is unlikely that any legal claim will be solved quickly, and legal claims alone will not solve site contamination problems.

Way forward

There may yet be an alternative approach to achieving site remediation independently of the court actions. The Indian government is reported to have set aside funds of £50 million for remediation. However, the specific operational experience and the necessary waste management infrastructure to achieve this may currently be lacking in India. An EU-backed full site investigation, supported by European consultancies undertaking desk studies, “double blind” sampling between Indian and European laboratories and eventual site clean-up works, could be the way forward, but will require high-level political support.

The ongoing legal cases still have the potential to redefine or remove the limits of international legal liabilities for companies operating sites overseas. There are many other legacies of contaminated industrial sites globally without the infamy of Bhopal.

Knowledge on environmental contamination and pesticide exposure effects is now being shared by Bhopalis in India and around the world. Bhopal may yet become a watchword in the field of sustainable development, not just for an industrial disaster.

Andrew Tinsley has just completed an MSc and his career background lies in environmental resource management. He can be contacted at andrew.e.tinsley@o2.co.uk. Richard Ansell is the founder of Envertis (envertis.co.uk), an independent sustainability consultancy specialising in resource efficiency.



Read the latest news daily at **environmentalstonline.com**



ONLINE OFFERS

As an IEMA member you can access:

- daily news updates
- *the environmentalist* blog
- searchable archive of *the environmentalist* articles
- links to the latest consultations
- details of new regulations
- links to upcoming events
- daily updates of the latest jobs

Accessible anytime, anywhere,
you need never be without
the UK's leading environment
management magazine

^{the}
environmentalist

www.environmentalstonline.com

iema
Institute of Environmental
Management & Assessment

On the same day that the Oil Spill Prevention and Response Advisory Group (OSPRAG) launched its new emergency spill response equipment, the worst oil spill in over a decade was unfolding in the North Sea. It took Shell several days to deal with the incident at the Gannet Alpha platform and a lot longer to stop the leak altogether – so much for an emergency response.

Emergency response usually means rapid action that will prevent a problem turning into a disaster. Fire engines, A&E units and police patrols can get to an incident in minutes and the crisis is over in a matter of hours. This does not happen with oil spills, especially those 100 miles or more out to sea. Workers and regulators can only watch and wait, sometimes for days or even weeks, for emergency response teams to bring oil spills under control. Meanwhile, precious oil resources are being wasted and hazardous pollutants are flowing out across the ocean floor and endangering marine life.

Leaking pipes

Shell's Gannet Alpha emergency response team took three days just to secure the flowline to the sea bed with concrete mats, and much longer to close the relief valve and stop the leak. An estimated 200 tonnes, more than 1,300 barrels of oil, leaked into the North Sea, covering an area of about four square miles.

A permanent fix was expected to take several more weeks once the remaining mixture of gas, oil and water was evacuated from the leaking pipe.

DECC deemed the incident "significant", but Hugh Shaw, the secretary of state's representative for maritime salvage and intervention, who was appointed to oversee the operation, did offer some reassurances: "Based on the latest intelligence that I have, my view is that the oil leak is under control and has now been greatly reduced as validated by remotely operated vehicle footage and ... aerial surveillance flights."

The company assigned an investigation team to establish the cause of the accident and set up a monitoring regime to assess the impact of the spill on the marine environment.

To put this incident into context, the oil spill at Shell's Gannet Alpha platform was not a disaster. Most of the oil was allowed to disperse naturally without chemical

Troubled waters

John Barwise asks whether drilling for oil and gas in progressively hostile environments can ever be safe



dispersant sprays, which actually helped to limit the environmental impact.

This was the worst North Sea incident in 10 years precisely because there have been so few major incidents over the past decade. There were no casualties, no catastrophic equipment failure and, although it took days to control the leak, the damage to marine life was relatively small.

But accidents still happen, sometimes with devastating consequences. In April last year, an explosion ripped through BP's Deepwater Horizon drilling rig in the Gulf of Mexico, killing 11 men and triggering one of the worst marine oil spills in the history of the petroleum industry. More than four million barrels of oil poured into the Gulf of Mexico over the next three months, decimating marine life and coastal wetlands. The pollution spread over 600 miles, from Louisiana to Florida, and by July 2010 all five states on the Gulf coast were badly affected.

Regulated industry

Deepwater Horizon, as the name suggests, was a deepwater platform, with high-tech, state-of-the-art drilling facilities, capable of reaching record-breaking depths of over 10km. Two days after the explosion, the platform and all its sophisticated monitoring equipment worth more than \$500 million sank, leaving oil gushing from ruptured pipes at a rate of 5,000 barrels a day. Even with the world's most experienced response teams and back-up support, it took nearly three months to cap the leaking well.

It was an environmental catastrophe. More than 15,000 species live in this rich ecological habitat including turtles, pelicans, herons, dolphins, tuna, crabs, oysters and shrimps. Within weeks, many were washed up dead on the shoreline. Wetlands and coastal reserves will take years to recover. Much of the Gulf was declared a fishery disaster zone and the seafood industry, worth more than \$2 billion,

was brought to the brink of collapse. US energy adviser Carol Browner described the spill as probably the biggest environmental disaster the country had ever faced. Following the accident, a six-month moratorium was imposed on all drilling operations in the area.

The offshore oil and gas industry is one of the most heavily regulated industries in the world and subject to a wide range of international declarations, protocols, action plans and conventions, such as the global programme of action for the protection of the marine environment from land-based activities and the international convention relating to intervention on the high seas in cases of oil pollution casualties.

In the UK, DECC is responsible for licensing, exploration and environmental regulation of oil and gas developments on the UK continental shelf (UKCS), including the issue of consents and permits, inspection, investigation and enforcement.

Following the Deepwater Horizon disaster, DECC ordered a thorough review of drilling rigs and compliance procedures in the UK. The review concluded that UK operations were good and among the most robust in the world. That was before the Gannet Alpha spill. Energy secretary Chris Huhne said at the time that he wanted to reassure the public that further exploration in deeper UK waters would be safe.

"It's clear that our safety and environmental regulatory regime is fit for purpose ... But the Deepwater Horizon disaster gives us pause for thought and, given the beginning of exploration in deeper waters west of Shetland, there is every reason to increase our vigilance," he said.

The formation of OSPRAG was one of the outcomes of the review. Other actions under way include plans to double the number of annual environment inspections of drilling rigs and a review of indemnity and insurance requirements for operating in the UKCS,

OSPRAG FINDINGS

The final report (lexisurl.com/iema11028) from the Oil Spill Prevention and Response Advisory Group (OSPRAG) was published on 21 September 2011, and concluded that the UK's oil spill prevention and response practices and procedures are of a high standard. "The UK response strategy and capability is essentially robust and can respond effectively to offshore spills that are likely to be encountered," it found. OSPRAG did, however, make several recommendations to strengthen practices and procedures further.



The oil industry's new well-capping device is on standby

The creation of a body to share best practice in preventing a major well incident is a key recommendation that has been taken forward with the creation of the Well Life Cycle Practices Forum. A second body, the Oil Spill Response Forum, has also been established on the recommendation of OSPRAG. It is charged with keeping a "toolkit" – of response techniques that can be applied, where conditions are favourable, to mitigate potential environmental and socio-economic impacts – under review, making further enhancements as and when required. A visible outcome of the group's work is a new capping device (pictured above). It is designed for deployment in the unique conditions found in the UK continental shelf, and is being held on standby in the northeast of Scotland, ready for use should it be needed to swiftly seal off an uncontrolled well.

OSPRAG, which was established in the aftermath of the Gulf of Mexico oil spill, notes that more than 7,000 wells have been drilled successfully in the UK in the past 20 years, without a major well-control incident.

which gives some indication of the inherent risks in offshore drilling, especially in deeper water.

Hostile environments

There's good reason to take the risks seriously. Since the 1960s, more than 100 countries have reported major oil spills in their waters, mainly from drilling rigs and tanker accidents. More than six million tonnes of valuable oil is leaking into the world's oceans every year. In recent years, over 75 major incidents involving spills of more than 34 tonnes have been reported in the North Sea. Health and Safety Executive documents obtained by the *Guardian* (lexisurl.com/iema11027) suggest this may be an underestimate, however, and that more than 100 potentially lethal oil and gas spills occurred in the North Sea in 2009 and 2010.

Most of the land-based and shallow-water oil resources have been exploited and many have already passed peak production. There are untapped reserves still available, but many of these lie further out to sea in deeper waters and hostile environments. Despite the risks of exploiting these resources, deep-sea oil exploration offers a viable investment opportunity for companies, given the growing global demand for oil and stubbornly high prices.

In the UK, the majority of offshore wells have been in water depths of less than 100m. But drilling in deeper waters, up to 1,800m, has become more common. Oil company Chevron has been granted permission to drill in the Lagavulin Prospect, west of Shetland, to a depth of more than 1,500m. And, just weeks after the Gannet Alpha spill, the government announced more offshore licences in deeper waters both in the North Sea and the west of Shetland field, on the very edge of the UKCS.

John Barwise is a director of QoL, an environmental management and communications consultancy



DECC estimates the west of Shetland area represents about 17% of the UK's remaining oil and gas resources.

The risks of drilling in hostile environments cannot be underestimated. A recent communiqué from Total, a major oil and gas group with exploration interests west of Shetland, says that the area is "characterised by extreme environmental conditions, such as wind, wave, temperature and water depth," adding that "this, combined with the lack of established natural gas infrastructure, makes projects in the area extremely challenging."

Final frontier

Much further north, beyond the UKCS, is a more challenging environment still. The Arctic Circle is said to contain more than 20% of the world's undiscovered conventional oil and gas resources. According to a recent US geological survey, areas north of the Arctic Circle hold in excess of 90 million barrels of oil, 1,600 trillion cubic feet of natural gas and 44 billion barrels of gas liquids, mostly in deep offshore areas.

The Arctic's ice-covered ocean, surrounded by permafrost, is a pristine wilderness and home to a rich variety of wildlife and a sparse population of indigenous peoples. But the ice is receding fast, which is opening up this new oil and gas frontier. The once ice-bound Northwest Passage is now open to commercial shipping most of the year, providing easier access to the precious new resources.

Ironically, global warming, which scientists say is caused mainly by burning oil and other fossil fuels, is largely responsible for melting the ice that has opened up the Arctic. Exploration in the region is now well under way. As these investigations gather pace, the world's environmental organisations have joined forces to oppose further developments in the Arctic and have called for all licences to be suspended.

The Arctic Council, an intergovernmental panel representing all the countries with land just beyond the Arctic Circle, is drawing up eco-management plans to protect the wilderness. The plans include an Emergency Prevention, Preparedness and Response Working Group and no doubt all participating countries will be required to adhere to international treaties and conventions to minimise risk to human health and the environment.

Accidents on drilling rigs in deep waters are numerous and well documented. Ageing platforms, metal fatigue, equipment failure, human error and severe weather are the main causes of offshore oil disasters. In most cases the damage to wildlife and the environment is serious, but access to emergency response units can help reduce those impacts.

Yet the Arctic remains a hostile environment, notorious for severe weather conditions and freezing waters. From October to March it is in darkness. Its remoteness makes it difficult to set up infrastructures to sustain operations and to provide adequate emergency response in the event of an incident.

Accidents are inevitable, but a disaster on a scale similar to the Gulf of Mexico without adequate back-up would be catastrophic for the Arctic's pristine and fragile environment.



The essential commentary and analysis
of Tolley's combined with the authoritative
legislative work of Butterworths

Fully updated with all the latest legislation, including full
coverage of the Equality Act 2010, these are essential
annual titles for all employment professionals.

Order the Employment Law Handbook 2011 set and **SAVE £32!**



Go to www.lexisnexis.co.uk/employmentlaw
or email orders@lexisnexis.co.uk quoting AD12591

A deep-green future

Skanska wants its construction projects to have a near-zero environmental impact. *the environmentalist* finds out how

In 2008, Johan Karlström, incoming president and CEO of Skanska, committed the company to becoming the leading “green” project developer and contractor in the world. Two years later, the Swedish construction giant’s UK arm was named the country’s best green company by the *Sunday Times*.

Skanska’s sustainability journey did not begin recently, however: the company has a long tradition of greening its construction projects. But in recent years, and particularly since Karlström’s appointment, the firm’s commitment to carrying out environmentally friendly construction projects has intensified. It also means that there is strong leadership from the top and a clear vision for placing sustainability at the heart of Skanska’s business model.

This is just as well, because implementing a consistent environmental strategy, with supporting processes and tools,

on a day-to-day basis across a number of different businesses and countries, while employing 52,000 people, is not an easy undertaking.

“Built environments are responsible for about 40% of all energy use and man-made CO₂ emissions so there is huge scope for reducing the construction industry’s impact on the environment,” says Greg Chant-Hall, sustainability manager for Skanska Infrastructure Development in the UK. “But it means taking a long-term view and future-proofing buildings so that they are sustainable for many decades to come, and not just during the construction phase.”

The colour palette

Skanska’s vision for its environmental strategy is depicted as a coloured roadmap showing its intended journey to a more sustainable future. The destination is “deep green” – deep-green buildings and deep-green infrastructure.

The definition of “deep green” is simple: zero impact on the environment, or as close to it as is economically possible. This means, says Chant-Hall, zero net energy consumption; zero CO₂ emissions; zero hazardous materials; zero use of non-sustainable materials; and zero potable water for non-potable use.

The intensification of Skanska’s expected environmental performance on its projects is captured in its “colour palette”:



- **Vanilla = compliance:** The construction process and/or product performance is in compliance with applicable laws, regulations, codes and standards.
- **Green = beyond compliance:** The construction process and/or product performance is beyond compliance, but not yet at a point where it can be considered to have near-zero impact.
- **Deep green = future-proof:** The construction process and Skanska's product performance has a near-zero impact on the environment, thereby future-proofing projects.

"The colour palette describes a project-by-project tool – we want to push every one of our projects as far towards the deep green region as possible," says Chant-Hall.

Some factors, such as engaged and demanding clients, can speed up the process and Skanska encourages clients to identify with its colour palette as early as possible. He explains that the opportunities to innovate and design sustainable solutions become much more limited as a construction project progresses, and so it is vital to engage with investors, clients, architects, system designers and suppliers long before the actual design process starts. The involvement of stakeholders early on in the process will also help to make the entire chain – from raw materials to completed construction and operation – more environmentally sound.

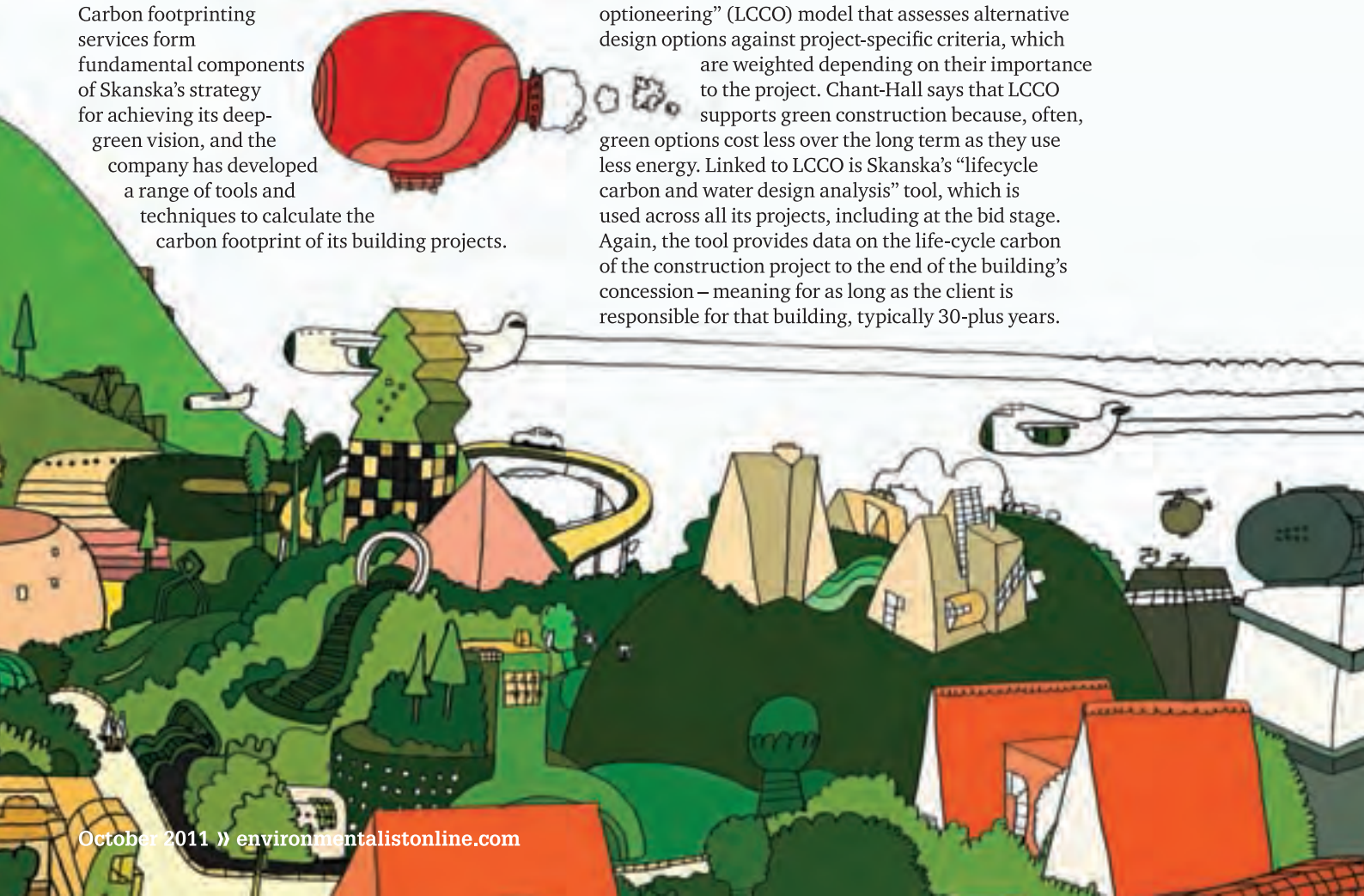
The tools for the job

Carbon footprinting services form fundamental components of Skanska's strategy for achieving its deep-green vision, and the company has developed a range of tools and techniques to calculate the carbon footprint of its building projects.

Chant-Hall explains that a carbon footprint can be categorised as embodied carbon from the products and construction process, and operational carbon from the use and maintenance of the asset. The former is the total carbon emissions related to construction materials and construction activities, while the latter describes the emissions associated with heating and electrical consumption during their operational lifespan. A building's carbon footprint is typically made up of about 25% embodied carbon and 70% operational carbon, with the construction process itself accounting for around 5% – so it's easy to grasp where the greatest scope for carbon efficiency lies.

Clients themselves have increasingly been demanding carbon footprinting services, and Skanska views its building life-cycle approach to calculating and optimising carbon emissions as an opportunity. "We see the colour palette and our drive to build sustainable buildings and infrastructure as a lever to win new business as the result can be cost- as well as energy-efficient," says Chant-Hall.

The tools in its "green toolbox" have the ability to project the environmental and efficiency savings achievable over the course of a building's lifespan. "If the initial expenditure on some more sustainable items is costly, we have the opportunity to demonstrate the operational return on investment through using the sophisticated tools we have developed," Chant-Hall explains. Skanska has a global life-cycle team and one of the in-house tools it has developed is a "life-cycle cost optioneering" (LCCO) model that assesses alternative design options against project-specific criteria, which are weighted depending on their importance to the project. Chant-Hall says that LCCO supports green construction because, often, green options cost less over the long term as they use less energy. Linked to LCCO is Skanska's "lifecycle carbon and water design analysis" tool, which is used across all its projects, including at the bid stage. Again, the tool provides data on the life-cycle carbon of the construction project to the end of the building's concession – meaning for as long as the client is responsible for that building, typically 30-plus years.



CASE STUDY: ONE AND TWO KINGDOM STREET

Skanska UK worked with a consultant to calculate the total carbon footprint of two Kingdom Street projects, constructed as part of the Paddington Central development in London. The 12- and 13-storey office buildings were completed in 2008, with One Kingdom Street being the first Skanska UK building project to implement a sustainability plan as well as an environment management plan – meaning that the project strove to ensure a positive contribution in terms of social, economic and environmental issues. It has since set the sustainability benchmark for all other Skanska UK building projects. One Kingdom Street exceeded client demands for a BREEAM environmental assessment by achieving an “excellent” rating.



The pioneering carbon footprinting study included the modelling of six alternative carbon reduction scenarios covering both embodied and operational carbon. For example, Two Kingdom Street was calculated to have a total carbon footprint of 92,230 tCO₂e or 2.6 tCO₂e/m² over a 60-year operational period, with operational carbon responsible for 61% of the carbon footprint and embodied carbon 39%. The total construction footprint for One Kingdom Street was 24,815 tCO₂e, with the steel frame and concrete works responsible for 35% and 18% of the footprint, respectively. The operational carbon count for both buildings would have been higher if it were not for their energy-efficient nature, as would the embodied carbon have been were it not for the sustainability plans that were put in place. At One Kingdom Street these include a geothermal heating system built into the concrete piles that were cast into the ground to support the structure. This system produces 210kW of heating and 85kW of cooling for communal areas, such as the reception, atrium and stairwell.

There was also a campaign on site during construction to minimise electricity consumption, including energy-use posters and daily email reminders to turn off computers and appliances. The waste management plan, meanwhile, resulted in the recycling of about 97% of site waste. In addition, a detailed travel plan helped to reduce the impact of employee transport, site deliveries and waste collection during construction – this included no on-site parking and the publication of public transport routes, timetables and travel information on posters and noticeboards, and the offer of interest-free season ticket loans for staff. Trade contractors were encouraged to ensure deliveries were managed efficiently by organising full-load or joint deliveries with other contractors.

The tool enables the project team to produce life-cycle data at the most detailed level. For example, for one door on one project Skanska has analysed 724 different elements in order to calculate the embodied and operational carbon contained in that door for its lifespan. Now that the tool has been in operation for some time, it can pre-populate much of the data for other projects, so it is not quite as laborious a process as it first was.

Working with stakeholders

Skanska views engaging stakeholders in its vision as critical to achieving its goals. Client demand for green building solutions is actively encouraged. Skanska regularly runs sustainability masterclasses where senior managers invite key clients to come and discuss the business imperatives around sustainability and exchange ideas for implementing them.

Encouraging Skanska's complex supply chain to identify with its environmental agenda is also a priority. Its procurement policy demands a high level of compliance with environmental standards as a matter of course, but Skanska also reaches out to suppliers in much the same way as it does to clients. It operates a “supply chain school”, a series of sustainability sessions for suppliers.

The company has also launched a green-solution award scheme for its UK suppliers. In addition, suppliers are invited to attend Skanska's annual “environment

week”, which is arranged to coincide with world environment day in June. “All staff are invited and there is a discussion with individual suppliers about environmental issues, and the reasons for choosing those particular suppliers,” Chant-Hall says. “This helps promote the supply chain to staff and increase their awareness of where our services and products come from, and their impact on the environment.”

Environment week is just one part of Skanska's approach to educating and engaging employees on its green goals. Another is sending every employee on a half-day session of IEMA-approved environment training at least once each year.

Continuous improvement

Skanska's vision is ambitious and not without its challenges. Continuous improvement and keeping abreast of innovations in the field are seen as vital to achieving its sustainability goals, and the company regularly collaborates with leading academic experts to develop its environmental learning curve.

Sharing knowledge within the company and across the different countries in which Skanska operates is also vital. But, says Chant-Hall, the key to achieving Skanska's deep-green strategy is to demonstrate the long-term value of sustainability to clients. To this end, the company is working on several financial models to help clients realise a greener built environment.

70%

The proportion of a building's overall carbon footprint accounted for by its use

Push the right buttons

Penny Walker on how best to influence staff behaviour

Sometimes you only need to influence one person to make a big decision, such as getting the purchasing director to specify certified sustainable timber products. At other times, the only way to meet your environmental objectives is to get a large number of colleagues to make small changes in their everyday activities. You can fit dual-flush toilets, but you only save water if people use the minimum flush; the impact of cycle racks depends on people getting on their bikes. This is where routine behaviours, social norms and habits come in. So how do you influence staff behaviour?

Think globally, act locally?

If you want people's behaviour to be more environmentally friendly, then it helps if they have green attitudes, right? Well, yes, but much less than you would think. According to Professor Ken Peattie of Cardiff University's Centre for Business Relationships, Accountability, Sustainability and Society (BRASS) (lexisurl.com/iema11055), research shows that attitudes towards the environment explain less than 20% of the differences between low-impact choices and

high-impact ones. Even if people have them, eco-values are a very poor predictor of eco-action. So if you want to change people's behaviour, changing their attitudes may be a very slow and unreliable way of going about it.

Six of one ...

Fortunately, individual motivation is just one of six key sources of influence that together provide a sound foundation for getting the behaviour you want. These influencers on behaviour divide into the categories of motivation and ability. You need to address these two crucial components at the level of the individual, their social setting (peers) and the structures within which they work. The more sources you utilise, the more powerful your behaviour-change lever will be.

Kerry Patterson, co-author of the book *Influencer: The power to change anything*, sets out each of the sources of influence in a useful table (see panel, p.30). They are:

- 1. Make the undesirable desirable.** Give people reasons to do the new thing, or to stop doing the old thing. These can't simply be your reasons – which may be altruistically environmentalist – but reasons that match their own motivation (which could be completely different from your own).
- 2. Surpass your limits.** Find out what people need to be able to adopt the new behaviour and put it in place. This could be skills, equipment or permission.
- 3. Harness peer pressure.** Encourage those who are prepared to do so to nudge and comment, to lead from the middle.



THE SIX SOURCES OF INFLUENCE

Motivation	Ability
Personal	
Make the undesirable desirable	Surpass your limits
Social	
Harness peer pressure	Find strength in numbers
Structural	
Design rewards and demand accountability	Change the environment

Source: (2007) Patterson K et al, *Influencer: The power to change anything*, McGraw-Hill.

- 4. Find strength in numbers.** Does the change need critical mass (for example, a car-sharing scheme)? Are there economies of scale (for example, buying fair-trade refreshments)? If so, put them in place.
- 5. Design rewards and demand accountability.** Make sure people get feedback. Will anyone notice if the behaviour changes? What will the consequences be for them if people adopt the new way of doing things, and if they don't?
- 6. Change the environment.** Ensure that the equipment, resource, and physical environment prompt and enable the new behaviour.

In practice

Helen McGreal is a health, safety and environment manager at chemicals company AkzoNobel. One of her goals was to reduce CO₂ emissions from the sales force, who rely on their company cars to do their jobs.

Her initial approach included raising their awareness of the environmental impact of driving, as well as getting more fuel-efficient models onto the fleet list. But the shift in car choices was minimal. There was also a risk that the best salespeople would leave if they did not like their cars, which are symbols of success as well as tools to do a job.

McGreal realised that while her own motivations included care for the planet, the natural motivators for the sales force in her company were a strong competitive drive and the esteem of being thought well of by their peers. So she found ways of harnessing these personal motivations. The more fuel-efficient cars on the fleet list are now those with the best interiors and gadgets. "Instead of comparing engine-sizes, the sales force now talk about their sat nav and audio systems," says McGreal. Choosing the coolest car is inseparable from choosing the greenest, so almost everyone chooses the more fuel-efficient cars.

Cutting vehicle emissions is not just about the right equipment, it's also about driving style. During AkzoNobel's "Safe and green" driver training programme, people compete to beat the instructor by getting their mpg as high as they can. And with real-time mpg displays in the fleet cars, they can continue to compete with themselves and each other to do journeys ever more fuel efficiently. A driving simulator game in the staff canteen gave everyone a chance to drive round a virtual track with the lowest emissions possible. The head of the UK and Ireland business was so keen to win that he came back and took part every day for a week. "There were small prizes on offer," McGreal explains, "but the chance to beat the boss turned out to be the real draw." Having used five of the six sources of

Penny Walker is an independent sustainability consultant. Read her blogs at penny-walker.co.uk/blog



influence, McGreal is pleased with the results. "Currently, we are driving less miles, have lowered the gCO₂/km profile of the fleet and controlled the fuel spend," she says.

For the journey

Paul Turner, group community investment and sustainable development director at the Lloyds Banking Group has made full use of the "structural ability" lever, when influencing staff behaviour on travel and paper use.

Lloyds has introduced a TRAVELWise programme promoting the use of teleconferences, video conferencing and web-enabled virtual meetings. As well as running awareness workshops about the programme and setting up self-guided training on the company intranet, every third week in the month at Lloyds is classed as a "no-travel week".

"Unless you are seeing a customer, you don't travel," Turner says. "It's still early days, but the vast majority of people who would normally travel, don't." And the effect is seen outside of the no-travel week too. "We thought there might be an increase in travel either side of the third week, but in fact we're seeing less travel in the other weeks too, as people realise how easy it is to use alternatives."

The monthly no-travel week is supported by the company's bookings and expenses systems. If you try to book travel or claim travel expenses a warning flag on the system discourages this.

A similar approach has been adopted for the bank's "Copy cat" initiative, with Turner's team putting systems in place that have led to significant reductions in paper, ink and energy use from printers. Some machines are password protected and this – alongside default black-and-white settings and double-sided printing – makes it harder for people to print wastefully and easier to do the green thing.

What about motivation? Have staff grumbled about these changes being built into IT systems? Turner says that because Lloyds, along with the whole banking sector, has been under significant pressure to change, those who are already interested in environmental improvement have welcomed the opportunity to do something positive. And those who are less green see the initiatives as part of the wider move to save money and work more efficiently. A network of about 800 internal champions has also been promoting the projects, reinforcing people's ability through training as well as providing some "social motivation".

What can you do?

If you're clear about the new, desirable behaviour you would like to get colleagues to adopt, check:

- Are you making use of at least four of the six sources of influence?
- Have you identified something that will motivate the individuals you want to influence? Remember, this may not be the same as what motivates you.

Once you are sure the answer to these questions is yes, take action and then reflect on what the impact has been. You can now adjust your approach and continue!

Let there be light

The Carbon Trust estimates that lighting accounts, on average, for 25% of an organisation's electricity costs. Simple steps can be taken to reduce this. Switching off lights in empty rooms and making the most of natural light are just two no-cost options. Spend a little money and even greater savings – both financial and in terms of emissions – are possible.

Commercial lighting consumes 42TWh of electricity in the UK each year, resulting in 22 million tonnes of carbon emissions. Lighting controls can reduce lighting energy consumption by 30–40%. Switching off lighting in rarely used areas such as storerooms can achieve savings in such areas of up to 90%. Estimates by the trust suggest that payback from installing lighting controls is typically five years or less, although some lighting companies claim payback can be achieved in 18 months. The trust also says that occupancy sensors, for example, provide improved convenience, a better working environment and increased security.

Controls and where to use them

There are three basic types of lighting controls, each more suitable in specific spaces/locations than others, but they can also be used in combination:

- **Occupancy sensors** – as the name suggests, occupancy sensors detect presence, switching lighting on and off when an area is occupied or unoccupied. There are three main types of occupancy sensor: a passive infrared (PIR) sensor, with lighting triggered by warm objects, such as the heat emitted by a person; an ultrasonic sensor (US), which sends a high-frequency sound wave – undetectable to the human ear – into areas, with lighting triggered by the movement of solid objects; and a microwave sensor (MS), which works on a

The first in a new series looking at ways to reduce resource use focuses on lighting controls

similar principle to the US, but uses much higher frequencies. Although they are less common, US/MS sensors are preferable in some areas, as furniture and machinery can obscure PIR sensors, which are restricted to detecting motion in “the line of sight” of the sensor.

- **Daylight (or photocell) sensors** – monitor natural light, switching off or dimming artificial lighting in response to changes in available daylight. Lights tend to be switched off or dimmed in groups (zoning), with those nearest windows, for example, separate from the rest. Daylight sensors should be used with timing controls or occupancy sensors to allow lights to be switched off when areas are unoccupied. The Carbon Trust advises that dimming generally saves more energy and, compared with switching, is less obtrusive to the occupants. It also says the cost of installing daylight sensors can be recovered in less than one year.
- **Timers** – can be set to switch lights on and off at predetermined times where workplace hours are fixed. Time-delay switches, which turn on lighting for a short period, can be effective in areas that are normally unoccupied, such as aisles and storerooms.

Lighting controls can be integrated into fittings but this would only normally be considered if the lighting needs to be renewed. Building control systems are also

FURTHER INFORMATION



Lighting will be featured in the Carbon Trust's "Expert in energy" guidance series in December 2011, and will include a new lighting technology guide and a training webinar. The series has already launched new advice and information on how to: green your business for growth; run refrigeration systems efficiently; implement heat-recovery processes and better understand your organisation's energy management. Visit lexisurl.com/iema11026 to register your place on the lighting webinar and to view the latest content.

available but are more suited to new builds or major building refurbishments rather than to retrofitting existing lighting systems.

Most controls can be set to operate automatically or semi-automatically. Automatic means the control turns the lighting both on and off, while a semi-automatic setting switches lights off when they are not required, but they must be switched on manually. Semi-automatic controls generally deliver greater savings.

Costs and savings

The Carbon Trust says that organisations should consider installing lighting controls where there is the potential to save at least 500kWh of electricity a year. This could be achieved, for example, with a 500W lighting load, being turned off for 1,000 hours per year – approximately four hours a day.

The cost of installing a lighting control will vary from contractor to contractor and installation to installation depending on a number of factors, such as accessibility to existing wiring and height of the ceiling. The trade price of a PIR occupancy switch is about £40 and its straightforward installation is about the same again.

The Carbon Trust's 2008 guide to lighting equipment eligible for enhanced capital allowances (ECA) (lexisurl.com/iema11025) provides some indication of the level of savings that can arise – although energy costs are now much higher.

The guide provides the following example: A 400m² warehouse with a fluorescent lighting installation that is left on for 10 hours a day, five days a week, even though the average rack is only visited one-quarter of that time. Installing ECA-eligible occupancy detectors (see below) on each of the 10 racks is predicted to save 70% on lighting-energy use in that part of the warehouse. In this

scenario, annual financial savings are estimated at £664, while energy savings amount to 8,736kWh and carbon emissions are down 3.8 tonnes. The cost of 10 sensors and their installation was put at £900.

The trust says that savings from installing lighting controls are roughly proportional to floor area, so a larger warehouse would achieve higher savings. It also notes that combining occupancy and daylight sensors can provide even bigger savings.

A UK company that designs and manufactures controls for lighting, heating, ventilation and air conditioning systems says that one of its PIR occupancy switches installed in a single office can typically save four hours of lighting a day, with an annual saving of £32 on electricity bills, while a PIR occupancy switch in a distribution centre warehouse typically saves 20 hours a day and £263 on the annual electricity bill.

Lighting controls such as occupancy sensors and daylight detectors come under the government's ECA scheme (the latest list of energy-saving plant and machinery – the Energy Technologies List – that qualifies for ECA is available at lexisurl.com/iema11007). The allowances enable businesses to claim 100% first-year capital allowances on spending on qualifying plant and machinery. Qualifying expenditure can include not only the actual costs of buying the equipment but also other direct costs, such as the transport of the equipment to site and some of the direct costs of installation.

Installation and control

An energy survey will identify where potential savings can be made, and modern metering and monitoring solutions provide detailed information on where energy is wasted and therefore where the greatest savings can be made. Most lighting controls can be installed in existing wiring systems, and competent electricians will be able to install simple systems. For larger, more complex installations it is wise to get guidance from lighting control manufacturers.

The main issue with lighting controls is turning lights off or on too soon. Settings are important, and although these will depend on the area covered by the controls, the Carbon Trust offers the following advice:

- The delay before fluorescent lights are switched off should be between 10 and 15 minutes – not less than 10 minutes.
- The switch-off lux level – the measurement unit for light – on internal, switching daylight sensors should be set at three times the required workplace level. So, for example, where the required level is 300–400 lux, the sensing controls should be set to switch off artificial light when levels reach around 1,200 lux. If dimming is used, then the reduction can begin at much lower levels.
- For occupancy sensors in meeting rooms, store rooms etc, select the "absence" rather than the "presence" control – meaning lights have to be switched on manually when entering, but switch off automatically when there are no occupants. This prevents lights automatically switching on when there is sufficient natural light for the occupants.



Time to book your conference place

Events Despite ongoing economic pressures, places at IEMA's 2011 conference, "Sustainable business: environmental professionals driving change", are currently being taken up at the same rate as for last year's event, which sold out.

The event, to be held on 15–16 November 2011 at Savoy Place in London, addresses the many challenges that organisations in all sectors are facing. From the transition to a low-carbon economy to understanding the limitations of operating within the natural capacity of the planet, the leadership role that experienced environmental professionals play in helping business and organisations to develop sustainable solutions has never been more vital.

The conference, sponsored once again by leading assessment, verification and certification body NQA, focuses on the scale of these challenges and the resulting opportunities open to environmental professionals. Ultimately, the conference will provide practitioners with the information, motivation and tools that are essential to helping lead their organisation's sustainable business ambitions. More than two-thirds of the conference seats have already been booked. Now, with less than one month to go before the event, IEMA advises anyone thinking of attending this leading event to enrol quickly to avoid missing out, as we anticipate that all seats will be gone by the end of October if booking continues at the current rate.

The conference features an impressive range of workshop sessions, including how to get value out of your certification body; how best to mainstream environment into your business; and how to change behaviour in your organisation to achieve better environmental outcomes.

There is also a zoned exhibition (see p.36) and an evening drinks reception (15 November), which will include the presentation of the IEMA graduate award.

In addition, the main stage will host a series of presentations on important topics such as the challenges and opportunities arising from better management of resources (15 November) and reducing the environmental impacts of products and services (16 November).



Speakers at this year's event, some of whom are pictured above, include:

- Henrietta Anstey – BAE Systems (3);
- Richard Aylard – Thames Water;
- Fiona Ball – BSkyB (6);
- Andrew Bloodworth – British Geological Survey (2);
- Sara Eppel – Defra;
- Julian Feasby – Environment Agency;
- Diana Montgomery – Chemical Industries Association;
- Mike Peirce – CPSL;
- Toby Robins – Wiles Greenworld;
- Lucy Shea – Futerra Sustainability Communications;
- Paul Turner – Lloyds TSB (5);
- Steve Wallace – National Grid (9);
- Dr Miles Watkins – Aggregate Industries (8);
- Peter White – P&G (4);
- Helen Woolston – Transport for London; and
- Peter Young – SKM Enviro (7).

The conference will be chaired by IEMA chief executive Jan Chmiel (1).

Members can book at the special member's-only rate of £349 for the entire conference. And, with group discounts available, why not consider bringing some colleagues with you? To find out more, visit lexisurl.com/iema10692. The conference will provide you with the motivation and tools to do your job better, so we hope that you are able to join us at Savoy Place.

NQA airs 50001 at IEMA conference



Energy Delegates attending IEMA's 2011 conference in London will be able to take advantage of an expert lunchtime presentation, separate from the main programme. Max Linnemann (above), environment sector manager at NQA – the lead sponsor at the conference – will present a special lunchtime session on both days of the event explaining the details of the new international standard for energy management – ISO 50001.

Linnemann will cover the origin of the standard, how it compares with ISO 14001 and how it supersedes the European standard for energy management BS EN 16001. Discussions will include how certifiable energy management systems have worked for organisations.

All conference delegates are welcome to attend the NQA session on either day and can book now to receive a priority lunch pass. Places are limited and are already being taken up quickly, so IEMA advises delegates to book their place soon. Visit lexisurl.com/iema10692 to secure your seat at the lunchtime session.

More successful IEMA members

IEMA would like to congratulate the following individuals on the success of their Dual (MIEMA and CEnv) membership applications.

- **David Bunyan**, Gifford LLP
- **Douglas Eltham**, Devon County Council
- **Jane Ferguson**, Grontmij
- **Amanda Gore**, Imerys Minerals
- **Timothy Neal**, O-I Manufacturing
- **Hema Patel**, British Nuclear Group
- **Delyth Toghil**, Parsons Brinkerhoff

Doing good, making money

Networking There are some things in sustainability that always make business sense. They are very easy to build a business case around – increased efficiency is always a good idea, reducing waste is seemingly a no-brainer.

However, this kind of corporate sustainability is in many cases incremental. Companies that see their core purpose as maximising profitability are increasingly being forced to recognise they can no longer ignore their interconnectedness with both human society and the natural world.

So, what happens when business enterprises come face to face with challenges that cannot be addressed within the parameters of current business practice? How do businesses create a framework for a harmonious balance between making money in the short term and securing long-term sustainability?

These questions and many others will be discussed at the next Guardian Sustainable Business Quarterly meeting on 16 November in London, which is entitled “Doing good, making money”.



The free evening seminar will start with an opening panel debate. Speakers include Jules Peck, founder partner at Flourishing Enterprise, a sustainability and wellbeing consultancy, and Wolfgang Weinmann, head of strategic development at Cafédirect, which works with coffee and tea growers.

Following the panel debate, delegates will break into small discussion groups to examine the key sustainability challenges facing businesses.

Later, there will be the chance to collaborate more informally with other participants over refreshments.

For more information about Guardian Sustainable Business Quarterly and to apply for a place at “Doing good, making money”, visit lexisurl.com/iema10691 or follow @GuardianSustBiz on Twitter.

Topics of previous Guardian Sustainable Business Quarterly meetings include how businesses can change behaviour and the role of brands.

IEMA EVENTS

Date	Region	Topic
Conferences		
15–16 November	South East	IEMA sustainable business: environmental professionals driving change
Regional events		
26 October	Scotland Central	Fuel cells: clean power for the food and drink sector
3 November	South East	Networking social
10 November	South West	Green drinks (Southampton)
CPD workshops		
26 October	South East	Environmental law and legislation
23 November	Yorkshire & Humber	Environmental law and legislation
Membership workshops		
16 November	Yorkshire & Humber	Full and CEnv
22 November	Scotland North	Full and CEnv
23 November	East of England	Full and CEnv
23 November	South East	Full and CEnv

Short cut

IEMA publishes online guide to biodiversity

IEMA's latest e-briefing, *An introduction to biodiversity offsetting*, was published at the beginning of September. It explains the concept of biodiversity offsetting and why interest in it is growing.

The briefing is free to download at lexisurl.com/iema11040. The series of e-briefings, exclusively available to members, offers condensed, digestible and useful information on key environmental management and assessment topics. Already published in the series since May 2011 are e-briefings on green tariff electricity, schemes and standards for greenhouse-gas reporting and carbon neutrality. To download the biodiversity offsetting briefing or the three others in the series, members must log in using their access details. Also, keep checking online for updates as further titles are to be published in the coming weeks.

First forum for EIA Quality Mark

Quality Environmental impact assessment (EIA) practitioners from around the UK came together in Birmingham on 4 October to debate challenges and share best practice at the first EIA Quality Mark forum.

Hosted by Josh Fothergill, IEMA's senior adviser on environmental assessment, the day-long event saw 50 delegates from registrants on the EIA scheme discuss the potential impacts of the changes to planning policy on EIA practice and how better communication may help to enhance EIA's reputation.

Three workshops throughout the day offered the participants an insight into an Environment Agency tool for capturing the value of EIA, a preview of a forthcoming IEMA briefing on how to integrate ecosystems services into EIA and a chance to learn more about the work of the Infrastructure Planning Commission, which will become part of the Planning Inspectorate in April 2012.

Those attending the event included Rachel Harper and Sian Thomas from Dulas, the latest company to join the EIA Quality Mark.



Dulas works with the renewables sector offering site finding, feasibility, monitoring and resource assessment, EIA and planning services for wind farm, hydro and solar PV developments.

It is the first new applicant to be awarded the EIA Quality Mark since the scheme's launch last April.

Claire Kirk, IEMA's professional standards manager, welcomed Dulas to the programme. "In joining the scheme, Dulas, like all of the other EIA Quality Mark registrants, has made an important commitment to ensuring its EIA activities continue to maintain their existing high quality," she said.

"It is especially significant that Dulas has volunteered to have its commitment independently verified by IEMA, an important step in improving EIA practice."

The EIA Quality Mark is a stamp of approval awarded by IEMA to successful registrants. It assesses quality across the registered organisations' EIA activities, including management processes and approaches. The scheme provides registrants with a benchmark for their EIA work and allows them to demonstrate their commitment to effective practice.

For further details on the EIA Quality Mark and how your company can get involved in the scheme, visit iema.net/qmark. To find out more about Dulas, visit dulas.org.uk.

Training directory

Course provider	Location of course	Dates courses running		
		Nov	Dec	Contact details
INTERNAL EMS AUDITOR COURSE				
Bidwell Management Systems	Various UK	*	*	marek@bmstraining.co.uk www.bmstraining.co.uk + 44 (0) 7718 985962
ECUS	Sheffield	*	*	training@ecusltd.co.uk www.ecusltd.co.uk + 44 (0) 1142 669292
Excel Partnership	Various UK	*		training@excelpartnership.co.uk www.excel-world.co.uk + 44 (0) 1442 242929
Marsden International (UK)	Online and blended learning; various UK	*	*	info@marsden-international.com www.auditmentor.com www.marsden-international.com + 44 (0) 7725 687946
SEQM	Newcastle	*		office@seqm.com www.seqm.com +44 (0) 1912 651034
WSP Environmental	Edinburgh, London, Manchester	*		learningsolutions@wspgroup.com + 44 (0)1313 442300
WYG Ireland	Belfast, Birmingham, Leeds, London, Manchester	*		roger.gillespie@wyg.com www.wygtraining.com + 44 (0) 8000 283340

IEMA unveils exhibition partners

Exhibition zone IEMA's forthcoming conference will host a special exhibition zone, providing delegates with a place to find new ideas, innovative products and services, and an opportunity to meet new contacts. IEMA is delighted to announce NQA, Ricoh, CarbonSystems, Futerra Sustainability Communications, SGS and Ruddocks as sponsoring organisations of this year's event and exhibition.

NQA – lead sponsor

Meeting stakeholders' environmental expectations can result in unwanted financial pressure. Energy and environment management systems are designed to reduce organisations' existing costs and automatically kick-start realistic and achievable performance improvements year on year. Independently certified environment management systems can provide organisations with credentials recognised at national, European and international levels, at the same time as achieving efficiencies to support businesses' bottom line. "Manage with certainty" – contact NQA to find the best route to certification for your organisation's environmental commitment.

nqa.com



Ricoh – sponsor of the drinks reception

Ricoh is a Fortune Global 500 company specialising in technology and services that transform high-volume, document-intensive business processes into more efficient ones. This is achieved through expertise in managed document services, production printing, office solutions and IT services. By working with Ricoh, businesses can streamline the way they work, become more efficient and profitable and share knowledge more effectively.

Founded in 1936 in Tokyo, Ricoh has a rich history of innovation and a deep-rooted respect for the environment, having been named as one of the "Global 100 most sustainable corporations in the world" for seven years running.

ricoh.co.uk



CarbonSystems – sponsor of the technology zone

CarbonSystems is a global leader in the provision of enterprise sustainability software. Its technology helps companies manage their carbon, energy, environment and social responsibility performance, and operate more efficiently by driving cost savings in their use of energy, fuel, gas, water, waste and other environment metrics. Companies with more than 25,000 combined locations around the world use CarbonSystems' enterprise sustainability platform to streamline and automate the capture, management and reporting of their sustainability metrics.

From its offices in London, New York and Sydney, CarbonSystems services clients in a diverse range of sectors, including real estate, construction, utilities, government, manufacturing, distribution, education, information technology and professional services.

globalcarbonsystems.com



Futerra Sustainability Communications – sponsor of the communications zone

Futerra was the first international communications consultancy to specialise solely in sustainable development and corporate social responsibility, with a mission to make sustainable development so desirable it becomes normal. It offers the full range of communications services from internal engagement, PR and strategy to design, digital, web, advertising and brand development. Its clients range from international superbrands, such as Unilever, to government departments, including Defra.

Futerra has offices in London, New York and Stockholm.

futerra.co.uk



SGS – sponsor of the learning and resources zone

SGS helps organisations improve their



performance through the delivery of services related to management systems – environment, health and safety, quality, sustainability and many more. It provides training to build capability in organisations and certify their systems against the chosen standard.

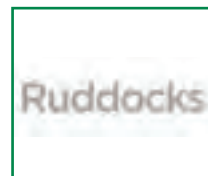
SGS works with more than 6,000 clients in the UK through a network of 40 offices, although its remit is global. It is recognised as the global benchmark for quality and integrity, employing in excess of 67,000 people and operating a network of more than 1,250 offices and laboratories around the world.

uk.sgs.com

Ruddocks – print sponsor

Ruddocks has been delivering innovative design and print solutions to clients in the private, public and charitable sectors for more than 125 years. An ongoing commitment to caring for the environment is at the heart of Ruddocks' operations, a commitment that was confirmed when it was the first printer in Lincoln, and one of only 5% of printers nationally, to achieve ISO 14001 certification. Ruddocks has also achieved Forestry Stewardship Council certification and continues to introduce measures to reduce its waste, emissions and energy requirements.

ruddocks.co.uk



The conference exhibition zone will also feature the following organisations:

- Big Green Book
- Carbon Clear
- Conestoga-Rovers & Associates
- Environmental Sustainability KTN
- EPR
- GreenStone Carbon Management
- Groundwork
- People Profit Planet
- RRC Training
- SOS4Business
- S-Tech
- Tarian Consult
- University of Hertfordshire
- WSP Environmental

the environmentalist will have its own stand, so please come and visit us.

IEMA *Diploma* in Sustainable Business Practice



Your qualifications - recognised

www.iema.net/diploma

iema

Institute of Environmental
Management & Assessment

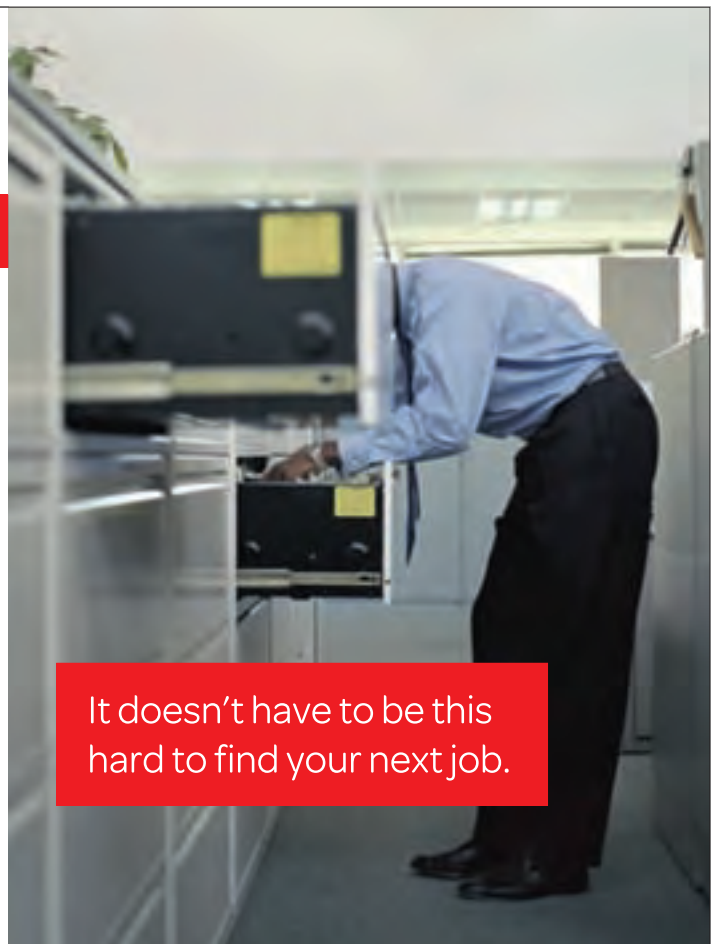
**the
environmentalist**

www.environmentalisonline.com/jobs

Find your next job through
www.environmentalisonline.com/jobs

- Over 400 live jobs, from the leading recruiters in the environmental sector.
- Updated daily with all the very latest jobs on one site.
- Let recruiters find you! Post your CV onto our database – register your CV now.

From the publishers of *The Environmentalist* magazine, this is a community where the best recruiters find quality candidates.



It doesn't have to be this
hard to find your next job.

Lucy Millard

Environment and sustainability officer,
University of Manchester

Why did you become an environment professional?

I've always wanted to make a difference in the world and one day, walking through a city and having rubbish blowing in my face, I realised that I wanted to work in the environmental field.

What was your first environment job?

As part of my degree I spent a year working for E.ON UK in its environment and corporate responsibility department. I was given a lot of responsibility for a student, including implementing ISO 14001, and it was a tough introduction to the sector, but it confirmed that this is what I wanted to do with my life.

How did you get your first environment role? During the final year of my degree I was searching for masters courses and came across the role at Oxford Brookes University by accident – I was actually more interested in further study than a job. Thanks to my placement at E.ON, I had relevant experience and was offered the job before I had even sat my finals.

How did you progress your environment career? At Oxford Brookes I was covering maternity leave and as my contract came to an end I saw the job at the University of Manchester and thankfully was offered the role. While working at Manchester I've had the opportunity to study for an MSc, which has been hard work, but well worth it.

What does your current role involve? The university is the biggest in the country, so it is akin to environment management for a whole town – we have homes, laboratories, offices, sports grounds, hotels, as well as specialist equipment found only in the institution. And, with more than 39,000 students and 11,000 staff, there is a lot to do. My role covers anything and everything to do with the environment, but recently I have been focused on carbon reduction and management plans.

How has your role changed over the past few years? I was the first person in a dedicated environmental role at the university and my job has changed almost beyond recognition in three years. At first it was trying to understand what was happening and gain senior management support. Now we have plans and policies in place and it is a case of implementing them.

What's the best part of your work? Seeing changes in the behaviour of students after working with them. I meet students with no interest in the environment, but after a nine-month project I see their views change, which is very inspiring. Also, no two days are ever the same and I never quite know what will happen when I come into work. Working with academics who are experts in the field is also exciting as I get to see the latest research.

What's the hardest part of your job? The ever changing population. With so many students joining the university each year it is a constant process of educating them about what we do and encouraging them to get involved. The size of the university also makes things more complicated.

What was the last development/training course/event you attended? A course on carbon footprinting held by the Institution of Chemical Engineers.

What did you bring back to your job? An appreciation of how complicated a proper life-cycle analysis is! The Higher Education Funding Council for England is about to place requirements on universities for scope 3 reporting, so the course really made me start to think about procurement.

What is/are the most important skill(s) for your role and why? Communication skills and a sense of determination. We can have as many



CAREER FILE

Qualifications

BSc environmental management,
MSc environmental governance

Career history

2008 to now

Environment and sustainability officer, University of Manchester

2007–2008

Environment coordinator,
Oxford Brookes University

2005–2006

Environment and corporate responsibility trainee, E.ON UK

policies and strategies as we like, but they'll never be effective if we don't have staff and students on board.

Where do you see the environment profession going?

Becoming more integrated instead of being seen as an add-on. As resources become scarcer, the profession will become increasingly important and will be looked to for answers.

Where would you like to be in five years' time?

Having conversations that don't have to start with convincing people environment management is the right thing to do – it being accepted already.

What advice would you give to someone considering going into the environment profession?

Go for it! The job satisfaction is amazing and it is a lot of fun. Also, show initiative to improve your CV; volunteer to be an environment champion if they exist at your organisation, and, if not, set up your own scheme.

The Challenge

Exciting frontiers
from Alaska
to Australia

You

Technical expertise
and a passion
to learn

BP

HSE at the top
of the corporate
agenda

We're hiring HSE professionals now

At BP, safety is our number one priority. It's in the spotlight and pushing us to new standards for safe and responsible exploration, development and production.

We need people who can take the lead in ensuring every part of our organisation is safe and sustainable. You'll make an impact on BP's future and help share what we have learned with the wider industry.

From the North Sea to Australia, deepwater installations to onshore operations, we offer variety and career-defining professional challenges. Our exploration heritage and major capital investment programmes ensure that new, varied and stretching opportunities are always on offer.

We're hiring HSE roles including Health, Safety, Security and Environment.

BP is an equal opportunities employer.

Are you up
for the challenge?
bp.com/hse/en



Associate EIA Director – Glasgow

RSK is looking for an Associate Director and Team Leader to manage and develop its Glasgow-based EIA, Planning and Design team. This is a strategic hire for RSK and will suit someone with suitable experience or someone looking for their next career move.

RSK is a leading provider of environmental impact assessment (EIA) services throughout Scotland and the UK and internationally. As one of the fastest-growing environmental consultancies in the UK, RSK offers excellent opportunities for advancement and growth to the right individual.

Experience

- Broad experience of working in different sectors for a variety of clients running complex and challenging EIA projects
- Experience of energy-related projects, in particular, of the renewables sector in Scotland, would be advantageous
- Comprehensive knowledge of UK planning and EIA legislation, and working with statutory consultees

Skills

- Business development
- People management
- Passionate leadership and mentoring ethos
- Budget management

Qualifications

- Degree in a relevant subject (essential)
- Principal IEMA Registered Practitioner (preferable)

Salary – Competitive

This is a high-level position at RSK. Opportunities like this are rarely offered outside the group, so this is an excellent opportunity to join RSK at the strategic level.

All candidates applying for positions with RSK Group must be eligible to work in the UK/European Economic Area. Candidates should confirm this when applying. Please send your CV and a covering letter to Sarah Murphy, recruitment manager, at smurphy@rsk.co.uk.

RSK Group is an Equal Opportunities Employer

www.rsk.co.uk



THE ARLEY CONSULTING COMPANY LTD



Principal Consultant/ Waste Management Consultant Chorley, Lancashire £50,000 + Benefits

The Arley Consulting Company requires an experienced Waste Management Consultant to join our elite team based at Chorley, Lancashire.

As a Principal Consultant you will play a key role in the business, delivering high quality advice and services to our waste management industry clients.

You must have extensive knowledge and experience of UK national and European environmental legislation, in particular its application to waste management facilities, including landfill sites.

You will also have experience of facility development, including landfill construction quality assurance, and dealing with permit conditions and the Environment Agency.

Your role will include dealing with clients, helping them to develop their businesses and assisting them on compliance issues.

As part of a very experienced team, you will have the support of some of the best industry professionals in the consultancy business.

A very attractive salary and benefits package is available for the successful candidate.

Send your cv in the first instance to: mailbox@taccl.co.uk

the environmentalist

For all your advertising needs

"When Sustainable Commercial Solutions was in the process of forming I used the environmentalist online to advertise for two key positions, fundamental for the initial success of the business. At this point we had no logo or website, a normal pre-requisite to enable the advertisements to be processed. However, the environmentalist online worked with us closely, being extremely supportive and helpful, providing a personal and hands on service to ensure the roles were advertised swiftly and professionally. I am very pleased to say I received a large number of applications from which I was able to recruit two first class individuals. Since then, our business has gone from strength to strength and we will certainly be using the environmentalist online again to advertise for future roles."



Christopher Bennett, Managing Director,
Sustainable Commercial Solutions.

Contact Elle Umeh
tel: 020 8212 1984
email: elaheh.umeh@lexisnexis.co.uk

Senior Ecologist

Optimise is aware that its activities interact with the environment. We aim to minimise the environmental impacts of our works, and ensure compliance with environmental legislation. In order to achieve these aims an exciting opportunity for an Ecologist has arisen within Optimise, a joint venture between the Murphy Group and its partners working for Thames Water.

Reporting to the Environmental Manager, the role will be to fill a broad Ecological role assisting Optimise to achieve its Ecological objectives across the AMP5 Programme. This will involve, but is not limited to:

- Experience of ecological report writing and briefing notes
- Ability to undertake extended Phase 1 habitat surveys and ecological constraints surveys
- Have knowledge of UK and European protected species, including: great crested newt, reptiles, badgers, dormice, bats and water voles and be able to conduct appropriate surveys
- Protected Species licences – GCN holder a minimum. Other protected species licences, including dormice and bats, would be beneficial
- Experience of working with contractors – ideally pipelines or utilities and to be familiar with key environmental issues
- Experience of liaising with regulators and local planning authorities to agree ecological mitigation
- Experience of implementing and monitoring ecological mitigation strategies and carrying out watching brief duties during construction activities where required
- Experience of project management and management of ecological sub-consultants
- Knowledge of the UK Water industry would be extremely advantageous
- The ability to demonstrate an understanding of sustainable design within construction and be committed to achieving the principles of sustainable development
- Experience of working with design and construction teams


In order to be considered for this role you will be:

- Educated to degree level in a relevant subject or equivalent
- Have full IEEM (MIEEM) membership

The ideal candidate will possess a proactive work strategy with the ability to challenge and defend decisions when necessary. The ability to adopt a pragmatic approach, demonstrate initiative and be prepared to mentor and train Optimise staff where required. A geographical knowledge of London, Thames Valley and the Home Counties would be advantageous in regards to local environmental issues. A full and clean driving is essential as the position will also involve travelling to sites within London, Thames Valley and the Home Counties.

This is a full time role working 7am-5pm Monday to Friday; however, the ideal candidate will be willing to work outside these hours when the role requires. We offer an excellent salary package to the suitable candidate.

If you wish to apply for this role please forward a covering letter and Curriculum Vitae to applications@murphygroup.co.uk



Senior Waste Professionals – Bristol Area

Owing to continued growth and expansion, RPS Planning & Development are currently recruiting key positions for our Waste Management Team in Bristol.

Having secured numerous large-scale projects, we are currently looking for Senior Waste Professionals with experience in any of the following key areas:

- Technical bid evaluation
- PFI/Procurement experience
- Thermal and biological treatment processes
- A sound understanding of current waste and energy markets and how they may develop
- Business Development (developing waste disposal and treatment contracts)
- Experience dealing with both Public and Private Sectors

Ideally, you will be a member of the Chartered Institute of Waste Management and able to demonstrate a successful track record in the Waste Sector.

This is an excellent opportunity to join a busy and vibrant Team and to develop your career with one of the UK's leading Environmental Consultancies.

We are offering highly competitive salaries - complemented by an excellent benefits package - for these roles.

Should you wish to find out more about the roles available, please forward your CV outlining briefly what skills you can bring to our highly successful Waste team to:

Jemma Scapens - Recruitment Coordinator
E: jemma.scapens@rpsgroup.com

RPS is an equal opportunities employer.
NO AGENCIES

creative people
making a difference

rpsgroup.com

WATA

environmental training

NEBOSH Certificate in Environmental Management

NEBOSH Diploma in Environmental Management

IOSH Working with Environmental Responsibilities

IOSH Managing Environmental Responsibilities

IEMA Foundation Certificate in Environmental Management*

IEMA Associate Membership Certificate Course*

Contact **WATA** on

01480 43 55 44 or

www.wata.co.uk

for more information



*IEMA courses are delivered in association with CAMBIO