Science & Technology Facilities Council

in brief

Welcome to this special edition of in.brief dedicated to Environmental matters, quite appropriate for a paperless e-bulletin!

The purpose of this edition is to raise staff awareness of the many areas in which STFC is actively delivering improvements to our environmental footprint, and, most importantly, to inspire you to think of new ideas through a new Environmental Improvement Suggestion Scheme.

"This newsletter gives just a taste of some of the results that have already been delivered across the STFC in reducing our negative impact on the environment. Improving our environmental performance is, and will increasingly be, an important goal for the STFC and one that I would encourage all staff, and those that work with us, to embrace. Environmental improvements often carry equally important financial savings and in the present economic climate we should take the opportunity to reduce waste and costs wherever possible. The 'Environmental Improvement Suggestion Scheme' is one way in which you can suggest ideas and change the way the STFC operates for the better. What's more it is a challenge we can all contribute to."
Richard Wade, STFC Chief Operating Officer

As you will read there are many great examples from across the STFC illustrating how we are applying our skills and energy to reducing our environmental footprint – we hope these will be a spur to further ideas and action.

Open Sesame

The SESAME project (Synchrotron light for Experimental Science and Applications in the Middle East) is to be a beneficiary of SRS equipment.

JAC summit clean up

As a sacred cultural and ecological site, the summit of mount Mauna Kea got a clean up on 01 March, removing 1,315 kg of trash and debris.

RAL recycling

Dry mixed recycling is being phased in across the RAL site.

Battery collection

Corporate news

STFC Environmental Policy

31 March 2010 was a 'Green Letter Day' for STFC when we took a significant step and launched our first ever Environmental Policy. As the profile of environmental issues continues to rise, this policy commits STFC not simply to meeting legal obligations but to manage the wider environmental impact of our science and technology programmes.

Controlled and Hazardous waste disposal Code

A new SHE code outlining the controls that are employed to ensure that controlled and hazardous waste is disposed of safely and in an environmentally responsible manner has been issued. Waste disposal should be considered as the last resort and alternatives such as avoiding creating the waste should be considered when planning work and projects.

Getting involved

But what can I do?

STFC is committed to reducing consumption of primary raw materials and minimising the amount of waste sent to landfill by recycling waste. We need your help and ideas to help us achieve this goal – use the Environment Improvement Suggestion scheme to have your say.

The battery recycling scheme has gone from strength to strength with over 25,000 AA batteries being recycled from the collection tubes around RAL, DL, SO and ROE.

Rocket composter

The RAL Rocket, an accelerated composter which recycles food waste from the kitchen has met with all Environment Agency standards.

Eco-friendly clinical waste

The Innovations Technology Access Centre has moved over to the new Bio-bin.

Environmental improvement projects

Old boiler

A programme of boiler replacements has seen a significant reduction in gas consumption at RAL. Integrated with a building management system upgrade the programme has seen an improved working environment, increased reliability and reduced maintenance costs, but most importantly a significant reduction in the consumption of gas.

Energy use at UK ATC

The ROE Estates Team supported by the Director's PA have formed an energy and utility working group. The group's aim is to monitor, communicate, improve and review how raw material is used at the UK ATC. The focus will be on commodities such as electricity, gas and water.

CRC and ISIS 'Tiger Team' results

Since April, STFC has become a participant in a Government carbon emissions trading scheme, the CRC Energy Efficiency Scheme. From 2011 STFC will have to 'buy' allowances to cover its CO_2 emissions. Currently STFC's emissions exceed the CO_2 consumption limit by a factor of twenty.

Synchrotron recycled

The SRS Decommissioning team have been hard at work separating items from the old synchrotron that can be recycled. In the current economic climate items which cannot be re-used can have considerable re-sale value, especially non-ferrous metals such as copper.

ISO accreditation

Swindon Office has received official confirmation of its ISO14001 accreditation for control of the impact to the environment of all of the activities conducted at Polaris House. ISO14001 is an International Standard covering environmental management and is designed to help achieve environmental and economic improvement goals.

STFC Environmental Policy

04 October 2010

The STFC Environment Policy was endorsed by Keith Mason recently.
Find out how you can make a contribution to the greening of STFC.

31 March 2010 was a '**Green Letter Day**' when the STFC took a significant step forward and launched its first ever Environmental Policy!

In itself the launch of an Environmental Policy will not achieve anything unless it is back up by action at all levels but most importantly by **YOU**. The launch of the Environmental Improvement Suggestion Scheme is one way in which **YOU** can raise environmental issues and turn your ideas on environmental improvement into reality – changing the way we work.

The importance of managing the STFC's Environmental footprint needs little explanation as the profile of environmental issues continues to rise. This is especially so in the current financial climate – environmental savings in raw material use or through recycling and waste reduction all have cost benefits to the STFC.

This policy builds upon and provides a management framework for the considerable number of environmental improvement projects and activities already underway at STFC sites, examples of which are detailed in this special edition of in-brief.

This policy commits the STFC not simply to meeting legal obligations but to manage the wider environmental impact of the science and technology programmes we operate directly, and in collaboration with others. It commences a process of spreading good practice and increasing environmental awareness across the organisation, from procurement and estates management to the management of science projects and facilities.

In the interim take time to read at least the first page of the policy and find out who sits on your site's Environment committee.

Boiler Replacement at RAL

04 October 2010

A programme of boiler replacements has seen a significant reduction in gas consumption at RAL.

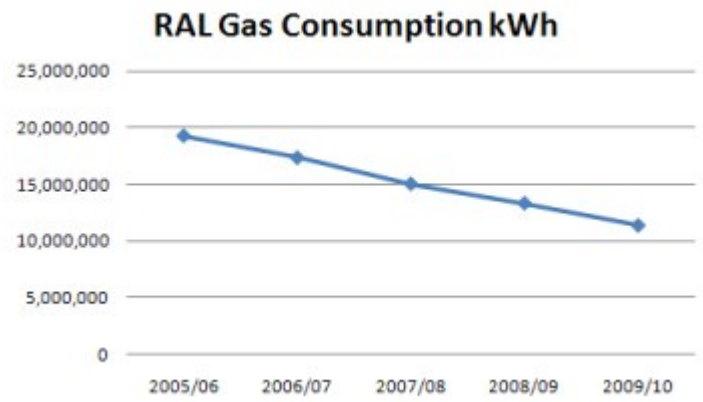
A programme of boiler and heating controls replacement, integrated with a Building Management System upgrade at RAL over the last four years has not only improved the working environment, increased reliability and reduced maintenance costs, but has also seen a significant reduction in the consumption of gas, during a period when the number of buildings on site has increased. The new high efficiency condensing boilers also consume a lot less water than the previously installed steam boilers that also required continuous chemical treatment.

The following buildings have benefited from the heating system upgrades:

R1, R2, R3, R7, R8, R9, R12, R18, R25, R25A, R34, R52, R63, R68.

The projects to replace the heating system serving R24 and R40 are currently in progress at.

The decrease in gas consumption is shown by the following graph for the financial years given:



During the boiler replacement projects, the opportunity was also taken to modify pipework inside the buildings and install additional control valves to improve zoning and therefore temperature control.

RAL Rocket Composter

04 October 2010

The RAL Rocket, an accelerated composter which converts food waste to compost has met with all Environment Agency standards.

In June 2008 the RAL Rocket was first commissioned. The Rocket was installed in order to recycle food waste from the kitchen that was previously being sent to landfill. The food waste is mixed with woodchip and grass cuttings also obtained from RAL. The compost produced is then used by RAL's ground contractors around site, saving further raw material usage.

On 15 April 2010 the Environment Agency visited the Rocket to undertake a Compliance Assessment Report. Support Services are very pleased that the Rocket met all EA standards and all is working to specification.

RAL Recycling

04 October 2010

Dry Mixed Recycling (DMR) is being phased in across the RAL site on a building by building basis.

On the 01 June 2010 RAL introduced a new recycling initiative. It is called Dry Mixed Recycling (DMR) and is simple to use, but at the same time cost effective and reduces our impact on the environment.

DMR is being phased in across the RAL site on a building by building basis, commencing with the buildings that are primarily used as offices. Six buildings are currently using the DMR scheme.

Put simply all grades of paper, plastic films and bottles, steel and aluminium cans, small pieces of cardboard can be placed into a single DMR bin provided they are not contaminated by other wastes, such as glass, wood, and food and kitchen waste. By segregating these materials in a DMR bin they can be converted into a reusable commodity.

By introducing DMR we reducing RAL's carbon footprint simply by diverting yet more of our waste away from landfill.

Implementing DMR in the targeted buildings has already reduced the number of general waste skips from approximately 80 to 15 and only introduced 20 new DMR skips. Individual offices keep their present bins for DMR use and all other waste, apart from large items, will need to be taken to kitchens to be disposed of. While open plan offices have two bins one for DMR and one for all other waste.

In the longer term, RAL Support Services plan to look at separating food waste from other waste for eventual use in the Rocket composter.

For more information please see Notice: http://staff.stfc.ac.uk/About/News/Pages/RALsitenotice_100526.aspx

Battery collection across STFC

04 October 2010

The battery recycling scheme has gone from strength to strength with over 25,000 AA batteries being recycled across STFC.

Following the introduction of recent legislation, STFC is no longer allowed to dispose of dry-cell batteries (AA and AAA batteries and the like) in the general waste skips. As a result we launched a recycling scheme earlier this year and a number of collection tubes were installed in various locations around STFC sites.

The response has been fantastic with most tubes having to be emptied regularly. The batteries are then stored in central locations prior to being collected for recycling.

Currently the RAL and DL sites have recycled between them the equivalent of about 25,000 AA batteries. ROE and Swindon Office have similar schemes with single collection points at each site.

CRC and ISIS 'Tiger Team' results

04 October 2010

Since April STFC has become a participant in a Government carbon emissions trading scheme. From 2011 STFC will have to 'buy' allowances to cover its carbon dioxide emissions.

STFC is under pressure to reduce its energy consumption. On April this year STFC was caught by the UK Government's CRC Energy Efficiency Scheme (formerly known as the Carbon Reduction Commitment, CRC). The CRC is an addition to EU emissions trading schemes and international climate change agreements, and is aimed at encouraging large energy consumers to contribute to the reduction of carbon dioxide (CO_2) emissions for the UK as a whole. From 2011, under the CRC, STFC will have to 'buy' allowances to cover the CO_2 emissions attributed to its operations. STFC's energy consumption exceeds the CRC threshold by a factor of more than twenty, and the cost of the allowances is expected to be initially in the region of £1 million, and to increase as time goes on. Under the CRC an organisation has only two ways to minimise its 'fines': firstly, by using less energy, and secondly, by generating (but not buying) 'green energy'.

Approximately 50% of STFC's annual electricity consumption results from the operation of the ISIS Pulsed Neutron and Muon Source. For this reason a small team within ISIS headed by Dr David Findlay has been evaluating possibilities for reducing energy consumption without compromising ISIS operations. Finding solutions that do not adversely shorten the service life of expensive components or the reliability of operation for users has actually been a very significant challenge.

A range of measures are being looked at, from equipping some large magnet power supplies with the equivalent of a 'standby button', through the greater use of variable-speed pumps throughout the facility, to the installation of more efficient heating and lighting systems in the TS-1 experimental hall. Existing plant and equipment replacement programmes and TS-2 Phase II construction projects also have a part to play — through, for example, the procurement of more energy-efficient equipment.

Transfer of Equipment of the SRS

04 October 2010

In the run up to the closure of the SRS it was recognised that new experimental equipment designed and installed on the SRS could be transferred to and re-used at other synchrotron sources.

One such was the old beamline 10, the optics and detectors from which has recently been successfully removed and re-installed on the Diamond Light Source as their 18th beamline, with the first users taking beam on the 27 April 2010.

Another legacy of the world's first dedicated synchrotron light source will be to enable scientific collaboration in the Middle East following the gifting of high-tech decommissioned components to the SESAME project by STFC.

The SESAME project (Synchrotron light for Experimental Science and Applications in the Middle East) has brought together the governments and scientists of Bahrain, Cyprus, Egypt, Jordan, Iran, Israel, Pakistan, the Palestinian Territories and Turkey, with representatives from another 11 countries (including the UK) participating as observers to provide help and advice. SESAME will be the region's first major international research centre and will be built in Jordan under the umbrella of UNESCO.

The high-tech components, originally from the Synchrotron Radiation Source in Daresbury, will be used to construct experimental beamlines for research into materials and life sciences. The equipment was formally gifted to the UK observer on the SESAME Council (Prof Samar Hasnain)

Further information: http://www.scitech.ac.uk/News%20and%20Events/11858.aspx

Synchrotron recycled

04 October 2010

Waste metal reclamation from SRS Decommissioning.

Those taking their dinner-time stroll around the Daresbury perimeter path will have noticed two things over the past 12 months: the striking new insulated facia to S Block; and the collection of skips in the Logistics yard.

The SRS Decommissioning team have been hard at work separating items from the old machine that can be recycled. In the current economic climate these items now have considerable re-sale value, especially copper metal.

In addition, this recycling activity also means that the decommissioning project complied with waste management legislation which requires such projects to plan how waste is to be dealt with.

For those interested in figures, the following table gives details of the amounts of material recycled (in tonnes) from the project:

	2009/10	2010/11
Steel	352.85	63.43
Oversize Steel	7.2	28.36
Stainless	10.8	2.68
Lead	51.082	43.156
Aluminium	5.378	1.53
Braziery	3.778	1.056
Heavy Copper	0.777	0.154
75% Copper	19.85	0.87
PVC Cable	9.829	3.724
Armoured cable	4.794	0.76
Gold	0.002802	0.0

STFC Environmental Improvement Suggestion Scheme

04 October 2010

With the launch of STFC's Environment Policy, the STFC Council has committed itself to moving forward with a number of environmental improvement objectives:

- **To reduce our consumption of primary raw materials (electricity, gas, water, etc.); and**
- **To minimise the amount of waste sent to landfill by reducing, reusing or recycling waste.**

STFC employees are central if we are to meet these objectives and as a result we are setting up a scheme that allows **YOU** to submit suggestions and help in achieving these objectives.

A simple form has been set up on the SHE Group web site to allow you to make suggestions. These will be considered by your respective site Environment Committees or, if relevant to the wider STFC, the STFC SHE Committee. To follow the progress of your suggestion, the minutes of our site environment committees are posted online.

While the suggestion scheme will be on-going we would like to place an initial deadline of the 31 October 2010 so that we can gather as many of **YOUR** ideas as we can.

So please have your say and suggest how we can reduce our environmental impact. Environmental improvement suggestions often result in financial savings which are clearly a major focus for the STFC in the present economic climate.

Make an Environmental improvement suggestion today.

Energy use at UK ATC

04 October 2010

Driving down utility (electricity, gas and water) consumption, of the Royal Observatory Edinburgh site is a key objective for the Estates Management team.

To manage this programme the Estates team, assisted by the Director's PA, formed an energy and utility working group to focus on utility consumption – to monitor, communicate, and reduce their use. Parallel environmental programmes to increase recycling rates for paper, batteries etc continue but the main focus will be utility usage.

The working group's objective is to reduce the use of raw materials and to make savings on utility charges by focusing on behavioural change and automation.

The programme is being carried out over a 24 month period, the first 12 months of which will gather data to set the benchmark for each building. Once complete, suggested improvements to the overall performance of the building and utilities can be identified and these implemented where resources permit. The second 12 months will be used to monitor the changes made and re-measure the building utility usage to determine the savings made.

Building by building the data gathering will consist of:

- Electrical power usage;
- Gas consumption and heating control;
- Water and lighting use;
- IT use;
- Plant and machinery automation;
- Human interaction and use of building; and
- Improvements and recommendations.

Measuring Power Usage Across the Estate

Using specialist monitoring equipment the group plans to monitor each building's power consumption for a calendar month, analyse the results and, where excessive power use is found, introduce to measures to reduce power consumption.

The monitoring equipment is ideal for site surveys and monitoring specific tasks as it causes minimal disruption. It monitors supply and consumption by means of safe non-contact current transformers. These can be placed around conductors without the need to switch off the power and without the need for live electrical contact.

An early success that been power usage in the C2 Computer Room. The room is cooled by two air conditioning units. Since installation both units have run independently with excessive power consumption. Upgrading and connecting the two units together now means they only come on when there is demand. Prior to the upgrade the units used 1150kWh per day which dropped to 740kWh per day - saving approximately £5,000 per annum on electricity!

Eco-Friendly Clinical Waste

04 October 2010

The Innovations Technology Access Centre (I-TAC) has moved over the new Bio-bin produced by Econix Ltd - an eco-friendly alternative to plastic waste containers for all non-sharp clinical waste.

The unique design makes them easy to store and transport raising their green credentials even further.

The lightweight paper construction also means savings in waste disposal costs. Using the Bio-bin, I-TAC staff and tenants can be assured that they are only paying for the disposal of their clinical waste rather than the container itself.

“It’s a small step in the right direction to reducing are carbon footprint” said Martin Morlidge, Manager of I-TAC. “We are now looking at further waste reduction schemes and how we make the Innovations Technology Access Centre eco-friendly

JAC summit clean up

04 October 2010

As a sacred cultural and ecological site, the summit of mountain Mauna Kea got a clean up on 01 March, removing 1,315 kg of trash and debris.

The summit of mountain Mauna Kea stands at 4,000m above sea level on the island of Hawaii - the highest summit and largest island in the Hawaiian archipelago. Mauna Kea is the location of the STFC's Joint Astronomy Centre (JAC) consisting of the James Clerk Maxwell Telescope (JCMT) and the United Kingdom Infrared Telescope (UKIRT).

The summit of Mauna Kea has very significant cultural and ecological significance. In Hawaiian mythology, the peaks of the island of Hawaii are sacred, and Mauna Kea is the most sacred of all. A kapu (ancient Hawaiian law) allowed only high-ranking tribal chiefs to visit its peak and studies are underway to determine the effect of summit telescopes on the delicate summit ecology, particularly on the rare wēkiu bug.

As part of the JAC's commitment to minimising the impact of its operations on the delicate ecosystems and in respect to the cultural heritage of the summit another site environmental day was organised on 01 March 2010. Concentrating on the areas around UKIRT, 11 members of staff removed 1,315.42 kg of trash and debris concluding the site's environmental clean up! Weekly walks have now been established to maintain the success of the clean up.