

Scientists for Global Responsibility

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Nuclear Issues

Global Nuclear Stockpiles - how many are there?

Much of this newsletter concerns itself with the "everpresent danger" of nuclear emissions from reactors. However, much of the reason for nuclear power in the first place – as Ross Hesketh's piece makes clear – was the drive to produce nuclear material for nuclear weapons.

This article is intended as a short update on the current state of play vis-à-vis weapons.

According to the reputable US Brookings Institute www.brook.edu current global stocks of nuclear weapons are:

| | |
|---------------------------|-----------------|
| US strategic | 9,170 |
| US non-strategic | 1,225 |
| Russian strategic | 7,622 |
| Russian non-strat. | 5,100 |
| UK | 260 |
| France | 450 |
| China | 400 |
| Israel | 100-150? |

There are also just under 15,000 inactive but intact US and Russian nuclear warheads which await destruction

India and Pakistan are building their capability - as demonstrated by recent tests. SIPRI (Stockholm International Peace Research Institute) call them de facto nuclear weapon states. In *Plutonium and Highly Enriched Uranium 1996*, Albrecht et al, identify Iran, Algeria, South Korea and Taiwan as "countries of concern", and have chapters devoted to Iraq and North Korea, whilst Argentina, Brazil and South Africa are seen as "backing away" from nuclear weapons. South

Africa used to have 6 nuclear weapons which have now been dismantled.

Right now states of nuclear alert are low. Nevertheless some 16 nuclear powered and nuclear armed submarines are currently on patrol, whilst NATO has moved to a more flexible nuclear response. One UK Trident submarine can hit 48 targets with a 100kT warhead, range 7,400 km.

A "Nuclear Winter" threshold level of nuclear use is around 100 - 500 warheads, particularly if they are targetted at high carbon targets such as oil installations or coal storage areas. Nuclear Winter is the term for a prolonged period of cold and dark after nuclear war due to large amounts of carbon particulate aerosols being injected high into the atmosphere.

So, on this basis the current "overkill" ratio is at least 20.

A similar number of nuclear warheads to that which could trigger a nuclear winter is a potential "Star Wars" or SDI type capability threshold. Or, in other words, in the minds of its proponents, a strategic defence system might possibly cope with up to a few hundred warheads.

These types of thresholds have prompted SDI advocates to argue that if the US and Russia reduced their warhead numbers to near 100 - 200 that a) an SDI would then nullify any remaining deterrent effect - so a reason NOT to reduce this far; or b) the need for an SDI anyway to guarantee against "rogue" nuclear

states (not meaning the current nuclear club of course) or accidental use.

BASIC thinks that around 200 US nuclear weapons are currently based in Europe

NATO's new military strategy, MC400/1, approved at the North Atlantic Council meeting on June 3rd, 1996 commits the alliance to maintain a reduced, but more flexible nuclear posture for the foreseeable future. MC 400/1 does not revoke NATO's long-standing policy of keeping the "first use" option open. It does not commit NATO to use nuclear weapons only as a last resort. While the main purpose of nuclear weapons

Continued overleaf...

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is said to be political, nuclear weapons are described as playing an essential stabilizing role in Europe, guarding against uncertainties (such as risks resulting from proliferation of weapons of mass destruction) and as serving as a hedge, in case a substantial military threat to NATO re-emerges.

NATO no longer maintains detailed nuclear war plans for the use of sub-strategic and/or strategic nuclear weapons in specific scenarios. Instead it has an "adaptive targeting capability", allowing senior NATO commanders to develop targeting and nuclear weapons employment plans at short notice during contingency or crisis from pre-existing databases on possible targets. NATO has also reduced the number of fully-trained dual capable aircraft (DCA) units ready to conduct nuclear missions in peacetime. Instead, the ability to deploy such aircraft from one NATO region to another has been increased. In peacetime each NATO country operating dual capable aircraft is required to maintain only one unit fully trained and ready for nuclear missions.

NATO's nuclear warfighting capability is strongly supported by a parallel modernization program for nuclear weapons storage sites on NATO airbases. In 1987 the U.S., and then NATO, decided to install "Weapons Storage and Security Systems (WS3) on all major European airbases. These storage systems allow for nuclear weapons to be deployed underneath nuclear certified aircraft within vaults constructed into the floor of "hardened" aircraft shelters. The system is said to protect the weapons against physical intrusion for a minimum of 30 minutes (by this is meant serious armed and violent intrusion involving high explosives – not someone kicking a door down!) and to allow for remote control of the safety status of weapons by built-in sensors. Another major benefit for NATO is that there is no external sign that weapons are being loaded or deployed. Formerly weapons were kept in "igloo" locations – sometimes off airsites - from where protesters (and spy satellites) could see deployment movements.

The current construction program for these new weapon storage systems

totals 208 vaults on 13 airbases. Since each vault probably holds one weapon, the new storage capacity, once completed can host 208 weapons.

U.S. Department of Defence Reveals British airbases to have nuclear weapons storage capacity

The U.S. Air Force's Electronic Systems Center accidentally revealed a British national secret. Marham Air Base in Britain and Brueggen Air Base in Germany are two Royal Air Force airbases having the capability to store nuclear weapons. On July 18, 1995 the Hanscom Air Force Base Electronics Systems Center issued a little-noticed press release announcing the \$24 million sale of 34 "Weapon Storage and Security Systems" (WS3), providing "storage of tactical nuclear weapons within the floors of hardened aircraft shelters" to Britain. The release stated that 24 vaults were installed at Marham Air Base in Britain by May 1995, and 10 more at Brueggen Air Base in Germany by June 1995.

The only U.S. airbase in Britain to have nuclear weapons storage vaults is RAF Lakenheath. It is likely that 30 vaults have been installed and reached initial operational capability on November 18, 1994. Originally, 48 vaults had been planned for this airbase. This may clarify reports in the British press that the nuclear weapons at Lakenheath might have been quietly withdrawn. They have been relocated to vaults, a much less visible storage method.

Other NATO countries have such vaults too. Germany: 101; Turkey (Incirlik: <30). There is an issue about whether or not new NATO members – formerly in the Eastern Bloc – will eventually have nuclear vaults too.

The vaults, which have remotely controlled "weapon safety" are manufactured by Bechtel National Inc (US) and Mannesmann Anlagenbau, Duesseldorf.

What weapons might the vaults contain?

The weapon of choice is the B61 or B61-10 (free fall bomb) made from a converted Pershing-II warhead. The B61-11 is an earth-penetrating weapon (as were some of the

Pershing-II weapons). So, while the Pershings left long ago, some of their warheads still remain.

This article was compiled using information partly supplied from a BASIC-BITS Research Note February 1997.

NATO deployment information via BASIC: supplied to the Berlin Information-center for Transatlantic Security (BITS) and the British American Security Information Council (BASIC) by the U.S. Department of Defense.

The BASIC web site www.basicint.org gives useful linked sites across this topic.

The Abolition 2000 campaign covers campaign work to reduce or remove nuclear weapons. www.napf.org/abolition2000 (hosted by the Nuclear Age Peace Foundation) gives a wide range of information about 3,500 citizen action groups around the world.

Something which struck my eye was the New Agenda Coalition which calls (amongst other things) for US and Russia to bring START-II into force without delay and to commence START-III. For nuclear weapon states to commence de-alerting nuclear weapons as an interim measure; to remove warheads from delivery vehicles.

The New Agenda Motion was passed by the UN First Committee, Friday 13th November 1998. US, UK and France, Russia, India, Pakistan, Israel, Turkey voted against. Japan and China abstained along with 12 other NATO states. Canada and Germany demand that NATO adopt a no-first-use policy. This unusual motion highlights substantial division within NATO on nuclear policy and strategy despite intense internal lobbying from the "older" nuclear states for the current situation.

This update compiled by Philip Webber.

[Editor's Note: The following two articles, submitted to SGR Newsletter in October 1998 by John Moore, are highly relevant to this issue of the Newsletter.]

American Scientists Point the Way

By John Moore

The United States National Academy of Sciences (the American equivalent of our Royal Society) has a Standing Committee on International Security and Arms Control known by the acronym CISAC. In a recent edition of the Bulletin of Arms Control, the 1997 report from CISAC was summarised by Frank Blackaby, a former Director of the Stockholm International Peace Research Institute.

Maybe this establishment body, which is not in any way anti-nuclear, can point the way for British scientists. Among its recommendations, which Blackaby describes as 'extraordinarily radical', are:

1. The United States (and by implication Britain and France) should adopt a 'no first use' stance regarding its nuclear weapons. The committee did not feel that nuclear weapons are needed to deter the threat of chemical or biological weapons (CBW). It considered the US conventional capability would be fully adequate to deal with CBW threats from 'rogue states'.
2. The United States and Russia should reduce their nuclear warheads to a few hundred each within a few years; and it should be the number of warheads, rather than the number of delivery vehicles, which should be verified.
3. The United States, and other nuclear weapon states, should 'de-alert': that is, they should remove their nuclear weapons from their hair-trigger alert status.
4. The United States should not take any further steps to develop or deploy an Anti-Ballistic Missile system.
5. To foster better US - Russian relations, the idea of a Central European Nuclear Weapon Free Zone should be encouraged.

6. With the Advisory Opinion of the International Court of Justice (the World Court) in mind, serious thought should now be applied to making the final move to zero nuclear weapons (Moves to general and complete disarmament should not be required as a necessary concomitant).

At the end of his summary of the CISAC report, Blackaby states:

'The main conclusion, for any reader of this formidable report, is surely that at present there is no momentum in the nuclear disarmament process. Yet there is a huge amount of unfinished business. We badly need a politician of international stature to look beyond the issues of next week and to put forward a comprehensive agenda for dealing with those awful relicts of the second half of this century.'

A Disarmament Role for Aldermaston?

For the last few years the Joseph Rowntree Charitable Trust has been funding a British Pugwash Group project on a possible role for the Aldermaston Atomic Weapons Establishment in verifying nuclear disarmament. Tom Milne, a member of the five person study group (which includes three Fellows of the Royal Society), reported on its progress in the September 1997 Bulletin of Arms Control. His report is summarised below.

The choice of Aldermaston might seem surprising; but, on the premise that "the poacher makes the best gamekeeper", American nuclear weapon laboratories have been doing extensive work on researching and developing verification technology for several years. The design and production of nuclear warheads has always been the Aldermaston laboratory's central task, but it will not now be required to design a new warhead for the foreseeable future, if ever. The Defence Committee of the House of Commons has said that it must diversify its work to justify its current funding.

It is quite likely that the scientists at the hitherto secretive establishment would welcome the increased

openness that diversification might bring. Scientists at the US weapons laboratories have embraced arms control work with enthusiasm. Many of these laboratories' senior scientists spend some of their time on unclassified research and are thereby enabled to participate in international conferences.

Some may object that such diversification could be a public relations stunt or a means whereby the nuclear weapons laboratory would be kept viable. For others, however, it would be a positive development for an establishment which, like it or not, will remain for as long as Britain is a nuclear weapons state. As Tom Milne asserts:

'Those whose primary concern is for nuclear disarmament should be reassured that the UK has not set in place an aggressive stewardship programme like the Americans; that the verification work would be paid for by a Labour government committed to international nuclear disarmament; and that reforming Aldermaston along these lines would involve the UK in nuclear disarmament in a tangible way at a time when the process is largely bilateral US-Russian.'

At present verification research and development amounts to less than one per cent of the UK's annual defence and R & D budget; and Milne argues that, if progress on verification techniques makes possible further disarmament, then overall defence expenditure would thereby be reduced. Moreover, if Aldermaston were to become a centre of excellence in verification technology, it could attract funding from other European countries. An arms control role for Aldermaston would build on the contribution made by Porton Down in providing strong technical backing for British negotiators who are playing an important role in chemical and biological disarmament.

The Labour government's Strategic Defence Review, published in July 1998, acknowledged a possible role for Aldermaston in nuclear arms control verification. A team is being established by the government to appraise the skills already available and report by the beginning of the

year 2000. To quote the Defence Review:

'The aim is to ensure that, when the time comes for the inclusion of British nuclear weapons in multilateral negotiations, we will have a significant national capability to contribute to the verification process.'

About the Author: John Moore, MSc, is a Lecturer in Mathematics at Leeds College of Technology, and the author of South Africa and Nuclear Proliferation (Macmillan Press, 1987).

In The Press Recently

[Editor's note: In June 1999, The Guardian's Peter Kingston contacted SGR for help in researching an article on AWE's attempts to secure closer links with student bodies in attempts to boost future recruitment. The following item appeared in the Guardian Higher on 29/6/99, and a letter from SGR commented on it in the following week's issue, 6/7/99].

Guardian Higher Tuesday June 29 1999 p iii.

New Dawn

Worry about a lack of future nuclear scientists has brought glasnost to Aldermaston, says Peter Kingston.

After decades of hugging the shadows and shunning publicity, the scientists who service and maintain Britain's nuclear deterrent are coming out into the sunlight in the hope of boosting recruitment.

The powers running the Atomic Weapons Establishment at Aldermaston (AWE) are now keen to build links with universities, colleges and schools because they fear they can't attract enough high-calibre science graduates and postgraduates.

They want to spot talent early to ensure an influx of younger boffins adequate to keep Trident in working order over the next generation, and to design its successor - if it is required.

There is no crisis, says AWE's chief executive Robin Bradley, but changing attitudes to nuclear weapons over the years and shortages of good science graduates in general have necessitated a new approach to

recruitment. "I guess there's always been a limited number of people who have been prepared to come and work on nuclear weapons," he says. "For many years AWE has been isolated from the academic community. We had to recruit our scientists from there, but once they were recruited, they became very captive here and the only people they could talk to were American scientists working on their weapons programme."

One problem is getting the message across that interesting and cutting-edge science is happening at AWE, says a spokesman. Since the test ban treaty, a dwindling number of Aldermaston's weapons designers have seen their products tested. "Nobody's designing new weapons at the moment. The Trident system is the UK's sole weapons system, and we have to maintain it in service for the next 30 years. We are asking ourselves if the challenge of maintaining the present weapons system in service is an exciting enough challenge to attract top class scientists." As Trident gets older it may need new materials. And designers must be ready to develop new systems if needed.

Aldermaston runs on a core of a few dozen designers. To sustain this it is looking for graduates with firsts and postgraduates with PhDs. To attract this calibre of boffin, the AWE wants to emphasise the work it is required to do by the most recent defence review on verification of nations' compliance with weapons reductions treaties. It is also proud of Aldermaston's diversification programme, which develops spin-offs from the research carried out for nuclear weaponry and its materials.

AWE has been working on calixarenes, compounds used to clean up heavy-metal contamination. It developed the brakes for Concorde and machines for drilling out blood clots. Researchers have also come up with a technique of turning medical scans into lifesize 3D models.

To foster relationships with universities, AWE has set up an academic council, a panel of scientists from Oxford, Cambridge, Imperial, Cranfield and Reading, its local institution. The aim is to stimulate interest and spot talent - and possibly

sponsor students through university. AWE is also fostering links with local schools. It is resourcing the transformation of a classroom in Queen Mary College, Basingstoke, into a science centre for up to 40 local primary schools.

In universities, AWE can anticipate flak from Scientists for Global Responsibility, a pressure group critical of nuclear weapons work. But Dr John Billowes, of Manchester University's physics department, thinks the average physics undergraduate is less likely now than 10 years ago to worry about the ethics of working on nuclear weaponry.

Guardian Higher Tuesday July 6 1999 p v.

Students Misled by 'Bad' Language

In Peter Kingston's report on the Atomic Weapons Establishment's new efforts to boost the recruitment of scientists (Guardian Higher, June 29), he wrote "In universities, AWE can expect flak from Scientists for Global Responsibility ...". Very well - we do indeed have things to say, though not in the language of military combat. In describing the work of nuclear weapons designers, the Atomic Weapons Establishment emphasises the words 'exciting', 'challenging' and 'interesting'. But these attributes are not enough to justify work on weapons of mass destruction.

As for 'cutting-edge science', this is difficult to achieve under conditions of extreme secrecy - conditions which, as long as the UK retains nuclear weapons, will only be relaxed to a very limited extent.

It would be quite different if the UK renounced its Nuclear Weapon State position. AWE could then help our country become a world leader in sorting out the messy heritage of the last half-century. (Although there are problems, the concept of retraining poachers as gamekeepers has, in this instance, some validity.)

Concerns about the selective, misleading language used in arms industry recruitment procedures came across vividly in the interview-based research, done by SANA some years ago, and published as *Your Career and the Arms Industry: Information for*

Science and Engineering Students. Scientists for Global Responsibility are currently working on a similar project, Careers Which Don't Cost the Earth. The resulting guide for student scientists and engineers will focus on the ethical issues in a wide range of employment.

We believe that graduates entering a new phase of their lives and a new century will find it useful.

Alan Cottey,
Scientists for Global Responsibility

First Opportunity for Public Consultation on AWE Aldermaston

At Aldermaston's Atomic Weapons Establishment (AWE) hundreds of nuclear weapons have been built during 50 years of operation, and warheads are still being manufactured there today. Three changes set in train by the previous Conservative government have contributed to more openness about AWE - especially about their nuclear waste. First, the Environment Agency became the regulator for nuclear discharges, then the consortium of Hunting BRAE took over management of AWE, and finally, the site became licensed.

AWE Nuclear Waste

Nuclear Waste from AWE can be considered under seven headings: historical discharges - particulate waste dispersed into the atmosphere from the chimney stack, and liquid waste to streams, local sewage works and River Thames every day for fifty years; historical arisings - liquid and solid waste from the past currently stored on site; decommissioned waste - old glove-boxes which are now being taken apart leaving highly contaminated plutonium (Pu); solid Intermediate Level Waste stored carefully on site; decommissioning waste - particulate and liquid waste produced during decommissioning and dispersed into the environment; plant awaiting decommissioning - disused glove boxes and the buildings they are in waiting to be decommissioned over the next 25 years. These facilities are continually

ventilated for safety reasons, causing Pu to be dispersed to air through the stack after filtering; current waste - particulate and liquid waste from weapons productions operations dispersed to air, streams, the Thames, and sewage works; low level waste - solid waste is removed to other sites for storage or dispersal;

AWE Radioactive Discharge Authorisation

Over the years consent for radioactive discharges has been given by the regulator of the time, roughly in line with contemporary knowledge and international and national radiological limits. The Environment Agency (EA) is now the regulator, and AWE's Application for a Radioactive Discharge Licence has been under consideration by them since February 1998. They have required seven sets of detailed 'further information' from AWE, and have delayed further, since they discovered an unlawful discharge of Tritium to the Aldermaston stream. At the beginning of August, and for the first time ever, The EA is producing a Consultative Document (CD) on AWE's radioactive discharges, inviting public response.

A Rough Guide to Reasonable Demands

- Reasonable Discharges should be reduced to near ZERO.
- The logical first environmental option is to STOP production.
- Decommissioning must be at a pace which minimises the risk to local people's health.
- Existing AWE nuclear waste must be safely contained and monitored on site.
- The site should become the above-ground Atomic Weapons Waste Establishment (AWWE).

Thousands of Responses Needed

The Consultation Period is from August to October 1999. We hope that thousands of ordinary people, in addition to the expert responses which we and many organisations will be making, will respond and show their concern about radioactive discharges from AWE.

In order to assist people to take this opportunity to comment on AWE, and

respond to the CD, the Network Information Project in Southampton will provide CD briefings, a model letter and postcards for signature.

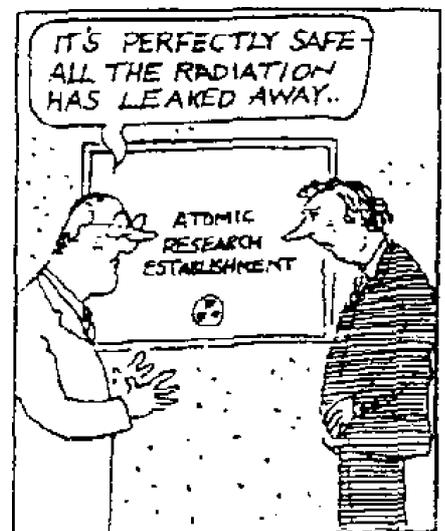
We hope that you and your organisation will submit a considered response to

**The Environment Agency
The Radioactive Substances Public
Consultation**

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The EA will accept submissions by e-mail, although they may not realise this could facilitate an international response to what they see as their "backyard" problem. We would like to ask for your help in whatever way you can offer it. A considered response would be marvellous, so would sharing our material with other groups and concerned individuals. To be sure of receiving more information. Contact (new no.) 023 80554434 or e-mail: nipdimac@gn.apc.org

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The Compleat Gamekeeper

Nuclear safeguards in Britain

by Ross Hesketh

In *The Devil's Disciple*, Shaw has a dumbo officer ask, "What will History say?", thereby allowing our hero, Gentleman Johnny, to deliver the punch line, "History, Sir, will tell lies, as usual." As we shall see, plus 🐘 a change.

A 1995 report from the British Pugwash Group, *Does Britain need nuclear weapons?* claims that "the UK opens all civilian nuclear facilities to international safeguards." A second edition of the report, issued in 1997, qualifies the claim: "Since 1992 civilian nuclear facilities in the UK have been open to EURATOM safeguards." Between 1995 and 1997 the carefully constructed mask of false history slipped a little. Let's help it on its way.

Drawing perhaps on the same sources of misinformation as used by the Pugwash authors in 1995, Professor William Walker, in a 1997 report for the International Security Information Service ["ISIS"] entitled *Britains Policies on Fissile Materials: The Next Steps*, writes, at page 18: "Britain has gone further than any other NWS [nuclear weapon state] in making its non-military nuclear materials and activities available to international safeguards." In a review in *SGR Newsletter No. 17* (at p 15), Rose Martin repeats this claim, almost verbatim. Rose Martin tells me she does not read the original sources, only ISIS reports. Professional journalists frequently have to report material in regard to which they do not have access to original sources, and professional practice in such cases is to sprinkle the writing with the 'he said' caveat – see for example any copy of *New Scientist*.

In all fields of endeavour, repetition is one of the more powerful ways by which a community establishes its 'facts', but the facts thus established are often unsound. The scientific community is not immune.

'Atoms for peace'

Let us look at some of the less comfortable facts. Britain's "non-

military" nuclear programme began in 1962, when Berkeley and Bradwell came on stream. Hence, formally, 1962 is the date at which we might expect the UK to make its non-military materials "... available to international safeguard...", but let's go back a little. Recall, first, that in December 1953, "... the United States and its allies, Great Britain and France..." (I quote from President Eisenhower's speech to the UN General Assembly), proclaimed a policy of "Atoms for Peace". According to Eisenhower's speech writer, this was not a policy of pious platitudes, of idle words or of shallow visions. Indeed not: nuclear power, said the President on behalf of the three allies, "... must be put into the hands of those who will know how to strip its military casing and adapt it to the arts of peace...". The International Atomic Energy Agency ["IAEA"] was established in 1956 to give effect to this admirable policy. The *Peaceful Uses of Atomic Energy* became the in thing; older readers may remember the jamborees [International Conferences] of 1955, 1958 and 1965 under this title.

The Statute of the IAEA clearly expresses the avowed purpose of providing an international safeguards system which prevents peaceful nuclear power being used to further "any military purpose" – I quote. Article III.A.5 of the IAEA Statute enable any State to put its civil nuclear power programme under IAEA safeguards. So, you may ask, peaceable Britain, a sponsor of "Atoms for Peace", put its forthcoming programme of civil nuclear power stations under the protection of IAEA safeguards? Well, ... er, ... no.

Atoms for the Ministry of Defence

Recall, secondly, that this time, in the mid-1950s, Britain's forthcoming non-military nuclear power programme was under the jurisdiction of the Ministry of Power. Given the background of international policy and of ministerial jurisdiction, it may seem a little odd that - five years after

the proclamation of "Atoms for Peace" and four years before the first UK "civil" nuclear power station came on stream - the Ministry of Defence - not the Ministry of Power - issued a statement that "certain of the civil nuclear power reactors now in the early construction or design stage are being modified so that the plutonium produced as a by-product is suitable for use, if the need arises," [sic] for military purposes". "The cost of producing plutonium for military purposes at atomic power stations will be borne on the defence budget", said the Ministry of Defence. Commenting on the announcement, the Scientific Correspondent of *The Times* lamented: "under this new policy, Britain will no longer be the only country in the world with a substantial programme of nuclear power stations operated solely for civil use." Of the intervention of the Ministry of Defence in an area which lay within the jurisdiction of the Ministry of Power, an MP observed, in a debate in the House: "one could understand that in pre-1914 Prussia the Ministry of Defence there might make announcements on civil matters, but it is a curious thing to happen in the democratic and constitutional Britain of today."

Does the military tail still wag the civil dog, forty years later? It would appear so, as we shall see.

Atoms for Mutual Defence

The Ministry of Defence made its announcement on 17 June 1958. On 3 July 1958, the USA and the UK signed the now infamous "Agreement for Co-operation on the Uses of Atomic Energy for Defence Purposes", commonly known as the Mutual Defence Agreement, the "MDA". Was the MoD's gung-ho announcement of 17 June 1958 an over-the-top jubilation at the imminent signing of the MDA? It seems highly likely. The USA says that under the MDA it received 5.4 metric tons of plutonium from Britain, for its weapons programme, between 1960 and 1970. This included *the entire production of plutonium from*

all the UK civil nuclear power stations, up to April 1969, according to official sources.

Perhaps at this point one should recap: The essence of the 1953 policy of “Atoms for Peace” was the separation of “peaceful nuclear activities” from military nuclear activities. The USA, Britain and France sponsored this beautiful policy.

Inspection is the essence of safeguards

Our less comfortable history has now reached 1969. The UK signed the Euratom Treaty in 1972, and the Treaty entered into force on 1 January 1973. ON 1 January 1973, Euratom Inspectors should have been admitted to the UK’s greatest diversionary risk, the Magnox Reprocessing line at Sellafield. BNFL has cheerfully (and correctly) volunteered that “inspection is the essence of safeguards”. So, you may ask, Euratom Inspectors were admitted to this plant on 1 January 1973? Well, ... er, again, ... no.

“...but not yet.” (Augustine)

In the Orwellian year, 1984, cross-examination at the Sizewell Public Inquiry uncovered the fact that there was a “problem” in admitting Euratom Inspectors to the Sellafield Magnox Reprocessing line in Building B205, a problem which had been under discussion between HMG and the Commission “... certainly since the accession [of the UK] to Euratom ...”. In February 1986, *New Scientist* ran a headline “Britain to let Europe’s inspectors into Sellafield”. The text of the article correctly stated that the “problem” between HMG and the Commission centred on inspecting building B205, a facility in which “... spent fuel from civil and military Magnox reactors is processed together”. “We hope”, wrote the Director of Euratom, “to start inspection on a routine basis in 1986”. A disappointed hope: Euratom Inspectors were first admitted to B205 six years later, in 1992.

Why was B205 operated outside the safeguards system for the first thirty years of the UK “civil” nuclear programme? I’ll give you one guess.

Fine and coarse diversion

There are at least two forms of diversion from a civil nuclear power

programme to a nuclear weapons programme, conveniently labelled “coarse” and “fine”. In the coarse method one simply diverts a quantity of plutonium from one programme to the other. The export to the US weapons programme of the pre-1969 production of plutonium from the UK “civil” stations was coarse diversion. In the fine method, weapon-grade plutonium manufactured in the “civil” programme is swapped with low quality plutonium cheaply produced in the military programme. In the fine method, the quantity of material in each programme is unaltered, but the quality is changed. (The fine method has a long history: Archimedes devised his Principle in order to detect it; Archimedes was a Safeguards Inspector, a Weights and Measures Inspector.) By design or not, Euratom safeguards are so drawn up as to be utterly powerless to detect fine diversion, as BNFL has volunteered, in evidence.

If fine diversion is undetectable within the framework of Euratom safeguards, why were Euratom Inspectors excluded from B205 from 1973 to 1992? Again, I’ll give you one guess.

Once or twice more into the breach

In regard to bomb material, or, as gentlefolk say, “fissile material for explosive purposes”, the then Prime Minister told Commons in 1964: “military plutonium production is being gradually terminated.” The contextual meaning of the word “gradually” became evident 31 years later when, in April 1995, the then Foreign Secretary told the NPT Review Conference: “I can announce today that the United Kingdom has ceased the production of fissile material for explosive purposes”. Whether the cessation announced in April 1995 is consequent on the fact that Britain now has “fissile material for explosive purposes” coming out of its ears, I am unable to say.

Safeguards are like a castle wall. A castle wall fulfils its protective function if it is *continuous*. It gives no protection if breached: “...Once more unto the breach, dear friends, once more...”*

Building B205 at Sellafield is the breach by which the nuclear warriors have taken, and raped, “Atoms for Peace”. For thirty years, from 1962 to 1992, the people who run the politicians who are elected to run the country have ensured that that breach remains open. The recent production of *Henry V* at Stratford is consciously modern in its emphasis.

“... not as representatives of organisations ...”

Are the nuclear warriors still in charge? In December 1996, The Royal Society established a working group to consider the management of the UK stock of separated, *civil* plutonium. In this working group, a former Deputy Chief Executive of British Nuclear Fuels who is currently Chairman of the British Nuclear Industry Forum, though a member of the Working group, did not represent either the interest of the Forum, or those of BNFL. The reports says so. Similarly, a former Deputy Chairman of AEA Technology did not represent AEA Technology, a former Director of UKAEA Culham did not represent UKAEA. In short, the UK nuclear industry was wholly unrepresented on the working group. The working group was chaired by a former Chief Scientific Adviser to the Ministry of ...er, ... Defence. What better choice could one imagine for a group established to consider the management of civil plutonium?

In 1966, an official UKAEA source stated, publicly, that until 1969, plutonium from the civil Magnox power stations was “... committed to weapons production ...”. In 1984, the statement was given an airing at the Sizewell Public Inquiry. None of the official spokesmen participating in the Inquiry contested the accuracy of the statement; none claimed it was a wrong statement. Notwithstanding which, the Royal Society report claims, wrongly: “in 1964, reprocessing to separate plutonium for future use as fuel commenced at Sellafield”. The Royal Society does not mention the commitment to weapons production, despite the UKAEA being the source of the information. Gentle reader, do not unfairly postulate collective amnesia in the Royal Society working group; rather, recognise that the UKAEA was wholly unrepresented on the working

* W. Shakespeare; *King Henry the Fifth* Act III Scene1.

group. So how could the working group possibly know?

The working group expresses “extreme concern” at the possibility that the stocks of civil plutonium might “at some stage” [*sic*] “be accessed for illicit weapons production”. Oh dear! Goodness gracious!

Come back, George Bernard Shaw, all is forgiven.

Objectively speaking, we’re better than everybody else

Has Britain done better or worse than other Nuclear Weapon States in separating peaceful nuclear power from not-so-peaceful nuclear power? Walker’s report for ISIS links the situation in Britain with that in France, and claims that both are “far superior” to the situations in China, Russia and the US, where “very few facilities are under routine international safeguards”. The explicit basis of this remarkable distinction (is the US Government party to it?) is that in Britain and France Euratom safeguards are applied. As we saw above, Euratom, safeguards were a dead letter in Britain for nineteen years, from 1973 to 1992. Likewise, Euratom safeguards were not implemented in France until 1992. Hence the distinction appears to be unfounded. The reference given in Walker’s report strongly suggests that the source of his information is the DTI. The DTI is also a source of Pugwash’s information.

Turning from Euratom safeguards to IAEA safeguards, IAEA annual reports give immediate access to knowledge of what is and, by omission, what is not, under IAEA safeguards. The annual reports I have consulted uniformly indicate that no facility of any consequence (*i.e.* of consequence in a diversionary context) is under IAEA safeguards, in any NWS. Of course, any NWS *could* place its “civil” nuclear activities under IAEA safeguards if it wished to do so.

In 1979 the then Assistant Director-General of the IAEA wrote: “... the French decision ... to adopt the gas-graphite fuel cycle was *intended* [my emphasis] to enable France to take the weapons route ...”. The same could be said of Britain of course. France

openly used its (allegedly civil) fast reactors to make bombs. Britain has been more evasive: its Prototype Fast Reactor and associated Fast Breeder Fuel Reprocessing plant were at one time under IAEA safeguards, but were removed from safeguards. No one will say why. BNFL and the UKAEA declined to say why. The (then) Department of Energy declined to say why. It passed the question to the Foreign Office, which passed it back to the Department of Energy. The IAEA declined to say why; it said the question should be put to “the appropriate governmental authority”. So we have to guess why. Any difficulty anybody?

It is far from clear that either Britain or France is a shining example of the separation of peaceful and unpeaceful nuclear activities.

facts: ...contingent in nature, expedient in purpose and ephemeral in duration

All governments are by nature devious—witness the Arms for Iraq scandal, the Arms for Sierra Leone pseudo-scandal., the Arms for Indonesia scandal, *etc.*—but this normal deviousness is compounded in the case of nuclear weapons by an insuperable problem of logic: on the one hand, the government of a NWS must produce a ‘good reason’ why nuclear weapons are a bad thing for other states to possess while at the same time producing an equally ‘good reason’ why it itself should refuse to give them up. This illogic pushes deviousness to new heights. Accordingly, sources of purported information must be subject to normal standards of rigorous, critical scholarship, *or better*. One cannot simply take Sir Humphrey’s word for it, Sir Humphrey is not a disinterested party, he heads a PR machine, a machine which, over the last decade, has undergone development and become noticeably smoother. For example, in the mid-eighties, Press Officers for the nuclear industry, and Ministers too, wrote freely to the Press. In the late nineties, by contrast, the Press Officers are conspicuously silent; information is delivered via ‘independent’ surrogates, openly in Walker’s report for ISIS, less openly in many cases, though a phone call and/or a glance at *Who’s who* is often revealing. The change increases the

acceptance rate in the target audience; material does not carry the stigma of coming from “them”. Sir Humphrey appears to have judged the safeguards PR to perfection.

Occasionally the machine overshoots, as in the grotesque misinformation fed to Pugwash (by “a secret source”!) that the Calder Hall and Chapelcross reactors have on-load refuelling. Occasionally the machine is lumbered with past events from which it cannot escape, as in a current and as yet unsuccessful attempt by the weapon makers on the two sides of the Atlantic (the US DoE and the UK MoD acting jointly) to create belief in an apparently mythical 1964 agreement. (In one sense that’s another story. In another sense it’s only the same old story, yet again: the rewriting of history.)

Usually the machine makes its story stick, though this may take time and considerable effort. A case in point is the misinformation that the explosion in Chernobyl-4 “was not a nuclear explosion”. The story doesn’t always stick; the story in regard to the recently disclosed disappearance of 170 kg of Highly Enriched Uranium at Dounreay appears to have come badly unstuck.

In regard to the material discussed here, any moderately scholarly consideration of the available facts of real history indicates that in Britain there has never been any material boundary (in either sense) between the weapons programme and the purportedly civil nuclear power programme.

In 1979, the then Assistant DG of IAEA expressed the view that safeguards can only be effective in countries in which *all* nuclear material is placed under safeguards, countries in which nuclear safeguards embrace *the entire nuclear industry* of the nation. I’m sure he’s right. Sir Humphrey is highly paid to persuade us to the contrary of course. And he succeeds. (Put a tick against SGR, Wainwright.)

As to history, the former US Secretary of Energy, Hazel O’Leary, giving evidence on behalf of a plaintiff in a case in which the US Department of Energy was the defendant, recently said: “... if you don’t correct the negative history you really can’t go

forward." True. True. Are we to go forward, or backward?

References are available on request. Contact the author at: Gathering Moss, Lower Stone, Berkeley, Gloucestershire GL13 9DP. Tel/fax: 01454 260430. About the author: Ross Hesketh is a natural philosopher. Now retired, the larger part of his career was with the Central Electricity Generating Board, at its Berkeley Nuclear Laboratories. He was subsequently Professor of Physics at Bayero University.

Nuclear Conference, December 1998

Report by John McEvoy

This was a well-managed and controlled public relations exercise! The overall theme of the conference was to convince influential delegates to get their (nuclear) organisations to act and be seen to be acting in a safe and responsible manner in order to reverse highly sceptical public opinion.

Each speaker in turn admitted to past mistakes, problems and breakdown of public relations. However each speaker offered positive prescriptive advice to invigorate the industry with the ultimate aim of sustaining use of nuclear power into the next millennium and beyond.

In terms of public relations the industry is now keenly aware of the public's perception about it - a perception no doubt shaped by the activities of organisations like BERG and SGR. Public perception shapes government policy. In order to address their friendless image, the industry is adopting counter measures. Furthermore, the burden on the industry to neutralise wastes is in part being diverted from decommissioning and waste management companies by the Euratom Directive.

In summary, the nuclear industry can look forward with optimism, secure in the knowledge that increasing the capacity of nuclear plant is the only viable means Britain has of adhering to the legally binding Kyoto Protocol and of providing a large-scale energy

source upon depletion of oil and gas reserves - blanket carbon taxes will have killed off the use of coal.

Conference Extracts

Martin O'Neill MP, Trade & Industry Committee: "Existing plants make a valuable contribution to reduce emissions".

Lord Marshall's report: "Clean coal technology is a long way away. The Kyoto Protocol may put coal out of business. Carbon tax will assist the nuclear industry. There must be a relaxation of the planning process to attract commercial companies, and there is a need to provide a planning framework to address controversial infrastructure development. The price of nuclear power will come down. Britain is an international centre of excellence; British firms are co-ordinating the running and clean-up of US plants. These facts must be *promoted* to the public.

Dr Schmidt-Kuester: "Our message must remain one that if you are concerned about reducing greenhouse gas emissions, nuclear energy remains one economic and viable option for implementing a balanced energy policy to achieve this objective. Many areas covered in the Kyoto Protocol were not well defined. Of major importance to the nuclear industry are the so-called flexibility-mechanisms - emissions trading, joint implementation and clean development mechanism - and these mechanisms allow a country or an industrial sector to choose from a number of negotiable options, to find the least costly method for reducing emissions."

Dr P.E. Hodgson, Oxford: "The world average duration of oil supply is 45 years, and gas is about 60 years. The world average supply of coal reserves is about 200 years. The only practicable large-scale energy source will then be nuclear power and so, inevitably, it will have to be developed on a large scale."

Colin Duncan, BNFL: "This year the nuclear industry in this country has come back firmly onto the political agenda... The public acceptance challenges the nuclear industry faces over the coming years are operational and not public relations ones. Operating and decommissioning

plants safely and with care for the environment, while improving the economics of the nuclear industry by offering world class services is fundamental. If the industry can achieve all of this and communicate it effectively then it will have not only the support of the decision makers but it will have gone a long way towards persuading a sceptical public. Anticipation of public reaction - even irrational public reaction - is vital. And finally, never rely on the press to get you out of trouble."

Nigel Hawkes, the Times: "A study by the Centre for Economic and Social Research on the Global Environment at the University of East Anglia ...[showed that] Only 7.6 percent of the public believe what governments tell them, only 12.8 per cent what companies tell them, and 16 per cent what the media tells them. At the other end of the scale, 80 per cent of the public trust environmental organisations, about the same proportion as trusts friends and family.

Anticipation of public reaction - even irrational public reaction - is vital. And finally, never rely on the press to get you out of trouble."

Dr John McKeown, UKAEA: "How do we regain the levels of public confidence and support we enjoyed 20 years ago? We must gain public acceptance of our objectives. We must also make sure that the only news from UKAEA is good news, but face up openly and honestly to bad news".

Dr David Fisk, DETR: - delivered an apology detailing why he would not deliver a presentation. He would not pre-empt the on-going enquiry by the House of Lords Select Committee on Science and Technology on nuclear waste management.

Dr Alan Hooper, NIREX: "There is a clear guidance on the requirements for safety and environmental protection which should be achieved in the disposal of intermediate-level wastes. Far less progress has been made in meeting social requirements for the disposal of UK's ILW's. There are useful examples of successful practices and procedures adopted in other countries but it is clear that a disposal project is unlikely to succeed until there is transparency about the objectives, scope and timing of the

decisions to be made at each stage of the project, and the creation of a framework where there can be dialogue with the stakeholders in those decisions."

About the author: Dr John McEvoy is an Engineer (PhD 1997) engaged in researching engineering aspects linked with nuclear waste deep disposal.

Nuclear Reprocessing at Sellafield:

Will it be over by the new millennium?

The Sellafield nuclear site in Cumbria is notorious for its pollution of the sea, its history of accidents, and its growing stockpiles of nuclear waste - including enough "civil" plutonium to make some 10,000 nuclear weapons.

How long can this old, dirty polluting industry continue with no rationale for its existence? Responsible management of existing spent nuclear fuel, in above-ground managed, monitored and retrievable dry storage, is gaining acceptance internationally as the least-bad way to contain our nuclear legacy. Plans to build new nuclear plants are largely history - at least in the West - and there is an urgent need to rapidly phase out ageing nuclear power plants and replace them with energy efficiency and renewables. Will Sellafield's reprocessing business soon be consigned to history?

This is the first in a series of three articles, and considers Sellafield's plutonium stockpile, radioactive discharges and other nuclear wastes in turn, and ends by analysing the future of reprocessing.

Plutonium and nuclear proliferation

Nuclear reprocessing was originally designed to separate plutonium from spent nuclear fuel for Britain's nuclear weapons programme. In the heady days of optimism for nuclear power, it was expanded to produce "civil" plutonium for use in a new generation of "fast breeder" reactors. The fast breeder programme is all but dead - another expensive failure of the nuclear industry. No commercial fast

breeder reactor is operating or planned anywhere in the world. Last year the Royal Society stated that the original grounds for reprocessing were no longer valid, and warned the Government that it must take steps first to stop the stockpile growing, and secondly to reduce it. This year the House of Lords Science and Technology Select Committee recommended that plutonium should be classified as waste - no longer the "potentially useful" material that Sellafield's owner, BNFL, has always claimed.

BNFL's plans to resurrect reprocessing by burning plutonium in conventional reactors (in a new type of fuel called MOX) are fraught with difficulties and dangers - including the nuclear proliferation risks of starting a whole new international plutonium economy. MOX would almost certainly not be used in Britain, but would be shipped to BNFL's international customers in countries such as Germany, Switzerland and Japan. It is classed as a direct weapons-useable material by the International Atomic Energy Authority (IAEA), since the plutonium can be readily extracted from MOX for use in a nuclear weapon (unlike plutonium in spent nuclear fuel, which requires remote handling because of its radioactivity).

Sellafield's plans to open a new full-scale MOX plant are awaiting a Government decision which must take account not only of these risks but of the likelihood that the operating plant would never recoup the costs of building it - leaving an expensive legacy of decommissioning costs and waste for future generations. The first shipment of MOX from Sellafield to Japan (from a smaller, pilot plant) is also planned, and already attracting international criticism for the world-wide security and safety threats it poses. Two BNFL ships in Barrow docks have been armed with guns to make the trip, but the security plan has been heavily criticised in the US as providing inadequate protection from terrorists.

Even if the threat of a global MOX economy were acceptable, BNFL has not applied to use the MOX plant to reduce its stockpile, but rather to justify continued separation of plutonium in its THORP reprocessing

plant. The stockpile is already too huge to be dented by the use of MOX, yet BNFL wish to nearly double it by 2010. Will the Government fly in the face of the Royal Society advice and allow this to happen?

Much depends on the strength of international opposition, but also on the public mood in Britain. Those SGR members who are concerned about the nuclear proliferation and security risks of separating plutonium, should write to the Foreign Secretary Robin Cook, opposing continued reprocessing, the opening of the new Sellafield MOX Plant, and the forthcoming shipment of MOX to Japan.

The next in this series of articles will consider discharges of radioactive waste from Sellafield to sea and air, and the implications for the environment and human health.

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US Holding Plutonium from UK Civil Stockpile

SGR members with long memories may recall that in SANA's heyday in the eighties, there was a working-party calculating the plutonium produced in the U.K. civil reactors. There have been recent developments in this saga that may be of interest.

The background to this work is that the UK government has never published the total quantity of plutonium produced by civil Magnox reactors. Since 1981 it has published a sub-total. The unpublished balance was sent to the US before 1971 under Mutual Defense Agreements (MDA). Previous Conservative administrations maintained that this plutonium was not used in weapons, but refused to quantify the balance. In 1985 we published calculations suggesting that this balance was (6.3 +/- 0.8) te [1]. Our conclusions were updated when it

was revealed that the amount of plutonium in solid waste at Sellafield is much larger than official sources had indicated previously. Our revised estimate for the civil losses was published in Ref. 2 and resulted in a figure for the balance of (5.4 +/- 0.8) te. In February 1996 the US Department of Energy published an inventory of its plutonium stocks, which stated that under the defense agreement with the UK the US acquired a total of 5.4 te of plutonium in exchange for 6.7 kg of tritium and 7.5 te of highly enriched uranium. The total of 5.4 te is in remarkable agreement with our revised figure published four years earlier [3]. Sadly, the story does not finish here because the statements do not specify the end uses of the plutonium in the US, nor do they clarify how much originated in the UK civil Magnox reactors rather than the military ones at Calder Hall and Chapel Cross.

The question of the UK origin of the plutonium is important due to the way civil and military Magnox spent fuel was co-processed in the same line at Sellafield. This procedure was exposed by the CND Working Party at the Sizewell Inquiry as a result of the efforts of SGR members including Ross Hesketh and David Lowry, with input from our team.

In our recent letter to Nature [3] we argued that the amount of military origin plutonium involved in the exchanges was a small part of the 5.4 te, possibly as little as the 0.1 te of 2% plutonium-240 purity referred to in a later US press release. We concluded that the UK provided the US with around 5.4 te of plutonium from the UK civil stockpile. All the 5.4 te plutonium is in the US defense stockpile. The UK government maintains it has not been used in weapons, but the published end uses contain at most 4 te of plutonium [1]. This suggests that around 1.4 te is not accounted for. If sufficiently pure it could have provided up to 300 warheads. We are attempting to get the current UK government to clarify fully the past history. Last year's Strategic Defence Review indicated that further details of the U.K. military stockpile would be published. It would be anomalous if this appeared without a similarly full clarification of the civil stockpile. Interestingly, the

previous UK government's excuse for secrecy, was that ...the barter arrangements...cannot be revealed for national security reasons in view of the relationship of this information to the quantity of highly enriched uranium received by the UK for defence purposes. As quoted above the US published the exact figure for the highly enriched uranium involved three years ago. It does not appear that the security of the realm has been imperilled.

**Keith Barnham, Jenny Nelson,
Physics Department, Imperial
College.**

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News gleaned from ENDS Daily

EU regulators appraise CEE nuclear plants ENDS Daily - 12/04/99

Nuclear power plants in Lithuania and Bulgaria fail to meet Western safety standards and planned improvements are insufficient to bridge the gap, a new report concludes. Prepared by the Western European Nuclear Regulators' Association (Wenra), the report analyses nuclear safety in seven central and eastern countries applying to join the EU. Its main conclusions for each country reviewed are:

- **BULGARIA** Planned safety improvements at two of six Soviet-designed VVER reactors at Kozloduy should achieve a level of safety "in line with reactors of the same vintage in western Europe". However, existing and planned improvements at the remaining four will not be sufficient to bring them up to acceptable standards.
- **CZECH REPUBLIC** The Dukovany VVER plant "should be able to reach a safety level comparable to plants of the same vintage" in western Europe. The status of the Temeln VVER plant, currently under construction (*ENDS*

Daily 8 April), could not be ascertained, but the group had "concerns that the ambitious safety improvement programme might not be successfully implemented," and said a "major effort" was necessary to prepare and assess a comprehensive safety case.

- **HUNGARY** The VVER plant at Paks has "no major shortcomings" and planned improvements will enable it to reach a western standard of safety, but its containment "leaktightness" is not as good as that in western Europe.

- **LITHUANIA** "Fundamental weaknesses" remain with the ability of the Soviet-designed RBMK plant at Ignalina to handle accidents and transient events without "unacceptable environmental consequences". The lack of an adequate containment system is a "major problem" which cannot be solved and prevents the plant achieving western European safety standards.

- **ROMANIA** The Canadian-designed CANDU plant at Cernavoda has a similar safety design philosophy to western European plants. The group recommended an additional assessment of its ability to withstand earthquakes.

- **SLOVAK REPUBLIC** Two reactors at the Bohunice VVER plant gave cause for concern in the event of severe accidents, while the other two would "probably" be as safe as western European plants of the same age in three years' time. Planned improvements at the recently-started VVER plant at Mochovce should ensure safety comparable with western plants of the same age.

- **SLOVENIA** Safety at the US-designed Krsko plant "compares well" with that at other western plants, but a seismic characterisation of the site is still needed and the utility which operates it is small and needs long-term financial stability.

- Overall, Wenra concluded that staff numbers, conditions and salaries should be improved in all CEE countries for regulatory authorities to retain staff competent enough to ensure adequate safety standards. Future reports will also review radioactive waste management and radiological protection.

Contacts: Swedish Nuclear Power Inspectorate (<http://www.ski.se>), tel: +46 8 698 8400. References: *Report on Nuclear Safety in EU Applicant Countries*.
<http://www.ski.se/wenra.pdf>

News in Brief

Trittin takes a further swipe at nuclear ENDS Daily - 12/04/99

German government funding for an international nuclear reactor development project is being withdrawn, environment minister Juergen Trittin announced on Friday. Funds for the independent European pressurised water reactor (EPR) project will be cut this year from Euros 0.92m (DM1.8m) to 0.26m, which is intended simply to cover work already contracted and produce a final report. "Because we are ending the use of nuclear power in Germany we no longer need this project," said Mr Trittin. The EPR project was begun in 1989 and a prototype reactor should be built soon, according to European nuclear association Foratom. Funded jointly by MPI, Framatome and Siemens, Foratom secretary-general Wolf Schmidt-Kuester said the project had already cost "hundreds of millions of marks" and a similar amount would be invested in the future. In this context, he said, the amount made available by the German government was "insignificant". He predicted that the partly state-owned company GRS, which was carrying out the government-funded work, would find other sources of funding or that the work would be taken up by the French side of the project. "This is another small piece of the mosaic showing how [Mr Trittin] is acting" with regard to the nuclear industry, he said, stressing that the government could do no more to jeopardise the project.

Contacts

German environment ministry (<http://www.bmu.de>), tel: +49 228 3050;
Foratom (<http://www.foratom.org>), tel: +32 2 502 4595.

[Editor's Note: The above was reproduced by kind permission of the online environmental news service ENDS Daily]

Turkish Plans for Akkuyu Reactor are Inherently Unsafe

Stop the Akkuyu Nuclear Plant in Turkey

A message from Dave Martin, Research Director, Nuclear Awareness Project (Canada).

Background

Following the Turkish election on April 18, 1999, it is expected that an announcement will be made soon of the winning international nuclear vendor to construct a nuclear plant at the Akkuyu site on Turkey's Mediterranean coast. Three international consortia are bidding to build the nuclear plant:

- (1) Atomic Energy of Canada Limited (AECL);
- (2) Nuclear Power International (NPI) – a partnership of Siemens (Germany) and Framatome (France); and
- (3) Westinghouse (USA) and Mitsubishi (Japan).

Why should we stop the Akkuyu Plant?

- Turkey has not conducted research to prove that a nuclear plant at Akkuyu would be acceptably safe from earthquake damage.
- An accident at Akkuyu could devastate the entire eastern Mediterranean region, and have global impacts.
- A nuclear plant would be very expensive and forestall other cheaper, cleaner energy alternatives for Turkey.
- Civilian nuclear technology could help Turkey to develop nuclear bombs.
- Human rights violations continue to be a problem in Turkey.

For more information visit

www.dispora-net.org/nuclear

The Action

Please visit the web site. From there, you can send e-mail and free fax messages to key politicians who are responsible for allowing the possible export of a nuclear power plant to

Turkey from vendors in Canada, USA, and Europe.

Update

Prior to the Turkish election on April 18, 1999, Turkey's Energy Minister, Ziya Aktas, stated that the selection of a vendor for the Akkuyu nuclear plant would be postponed only until after the election. He emphasized last February that the tender would not be cancelled (Ercan Ersoy, "Turkey postpones nuclear tender to after elections", Reuters, February 19, 1999).

Shortly before the election, the Turkish Undersecretary of Energy Yurdakul Yigitguden stated in New York at a forum on energy in Turkey that the Akkuyu nuclear plant would definitely proceed after the election, saying, "The nuclear power station is still under evaluation and we hope that this evaluation is finalized in 1999." (Haitham Haddadin, "Firms to build Turkey hydro power plants", Reuters, April 19, 1999).

The Democratic Left Party (DSP), led by Bulent Ecevit, took first place in the election with 133 seats in the 550 member Turkish parliament. The DSP was followed closely by the ultra-nationalist right wing Nationalist Movement Party (MHP) of Devlet Bahceli which took 130 seats. The MHP is notorious for its association with the "Gray Wolf" street gangs. It is deeply religious, and does not support democratization or protection of human rights. Not surprisingly, the MHP is also a strong supporter of nuclear power.

Although it is not clear with whom Ecevit will attempt to build a coalition, support for nuclear power may have been strengthened in Turkey. The MHP will either form the opposition, or join Ecevit in a governing coalition. Either way its pro-nuclear policy will likely have an impact. Similarly, the electoral decline of the Islamic Virtue Party (whose predecessor party came first in the previous 1995 election) may allow the Turkish military to focus its attention on other controversial issues, such as nuclear development. The armed forces exercise fundamental control of Turkey. In a "soft coup" in 1997, the military forced the democratically elected Islamic Welfare Party out of government and banned the party.

In Turkey, the municipal elections are held at the same time as the national elections. One positive result was that the pro-nuclear mayor of Buyukeceli, Kemal Gudul, was defeated. Buyukeceli is the small village several kilometres away from the Akkuyu site. Unfortunately, the anti-nuclear mayor of Silifke, Sadik Avci, was defeated. Silifke, with a population of 80,000, is the closest large city to the Akkuyu site (about 45 kilometres to the west).

Anti-nuclear activists in Turkey and abroad have been very active opposing Akkuyu...

- In March 1999, letters opposing the Akkuyu nuclear plant were sent to 300 Canadian members of parliament by Bulent Aytekin of the Turkish Anti-Nuclear Platform. The letters were endorsed by 28 Turkish environmental groups.

- On April 13, 1999, Greenpeace Mediterranean held a news conference in Istanbul focusing on the risk of earthquake damage to a nuclear plant at Akkuyu. The news conference featured Prof. Attila Ulug of Dokuz Eylul University in Izmir. Greenpeace also cited Canadian experts, seismologist Karl Buckthought and geophysicist Arsalan Mohajer. Prof. Ulug stated, "Scientific evidence from our 1991 report as well as recent reports by our Canadian colleagues show that real dangers exist in siting reactors in Akkuyu. We are warning all international bidders and their Turkish partners to stop pretending that Akkuyu is seismologically safe. They should immediately withdraw from such a dangerous investment."

- Environmental activists in the Turkish Black Sea city of Sinop met on April 25, 1999, to organize opposition to nuclear power, and were supported by Eastern Mediterranean Environmentalists already opposing Akkuyu. The Turkish state utility TEAS has chosen Sinop as the site for construction of a second nuclear plant after Akkuyu.

- In Canada, concerned groups have launched a 'post card' campaign aimed at Canadian Prime Minister Jean Chretien, who is known to be a strong supporter of CANDU reactor exports. Chretien has already received more than 20,000 post cards from Canadian citizens saying "Stop the Akkuyu

nuclear plant!". The campaign continues.

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Nuclear Power Plants in Eastern Europe

Though they fail to meet Western safety standards, Soviet-designed reactors still operate throughout the former Soviet bloc. More than 10 years after the explosion at Chernobyl's Unit 4 in 1986, 67 Soviet-designed nuclear reactors continue to run in Eastern Europe and the former Soviet Union. None meet Western safety standards. At least one third are believed to pose serious safety risks. Fifteen are inherently unstable RBMK (Chernobyl-type) reactors.

1995 saw the restart of one of the riskiest reactors in the region - Armenia's Metsamor 2, which had been closed following the 1988 earthquake. Meanwhile, 21 additional Soviet-designed reactors are at various stages of construction worldwide, including two reactors at the Juragua site in Cuba and at least one reactor at Bushehr, Iran.

Soviet-designed reactors of the types RBMK and VVER-440/230 are considered to be especially unsafe by most Western experts. A total of 26 RBMKs and VVER-440/230s operate in six countries in Eastern Europe and the former Soviet Union: Russia, Ukraine, Lithuania, Bulgaria, Armenia and Slovakia. They are known to pose serious safety risks that cannot be "fixed" with technical upgrades.

RBMKs have an irreparable design flaw that makes their operation unstable at low power or in the event of coolant loss, and allows for a runaway power surge like the one that caused the Chernobyl explosion. RBMKs also use a graphite moderator (to facilitate the nuclear chain reaction) which can burn in an accident and swells even in normal operation, distorting the geometry of the core and bending the fuel tubes.

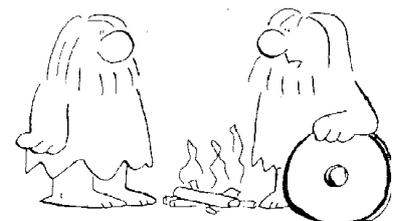
Neither RBMKs nor VVER 440/230s have Western-type secondary containment that would prevent the release of radioactivity in the event of an accident. Both reactor designs also lack adequate emergency core-cooling systems to prevent overheating that could lead to a meltdown.

Despite the inherent nature of these safety problems, most of the international nuclear safety assistance in the region continues to be devoted to short-term technical upgrades designed to improve fire protection, emergency response training of plant personnel, and instrumentation and control systems. Although better than nothing, these measures are akin to putting a Band-Aid over a compound fracture, and could serve to extend the time these dangerous reactors are operated.

And if that is not worrying enough, the www.ecn.cz site ("No More Chernobyls") gives details of all known nuclear plant accidents which have occurred over the last decade or so in Eastern Europe, along with site maps, population figures within release radii, plant operator information, local contact group addresses and ideas for alternative renewable sources of energy. The types of accident (fires, leaks) and risks (flood and earthquake zones) which seem to be common across the former Eastern Bloc are of serious concern and have already resulted in plant worker deaths.

This report compiled from: www.nrdc.org/nrdc/status/nusuener.html (National Resources Defense Council).

Philip Webber



"Let's concentrate on technology for a couple thousand years, and *then* we can develop a value system."

Last week I made my latest trip to the Peace Camp opposite the Trident submarine base at Faslane, Scotland (it happened to coincide with a meeting of the UK Biochemical Society in Glasgow). They are under threat of eviction, but negotiations with the Argyll and Bute Council are proceeding in reasonably collegial fashion for the time being. The pressure, if any, is from the Ministry of Defence, who own a substantial piece of property behind the camp which is to be redeveloped, and which is of course much more valuable without an encampment at its gate. The present accommodation on the MOD site might house a number of refugees... There is a 15-year old, nearly blind, dog at the Peace camp, scruffy but friendly like the other occupants. The young woman there who had sold me a "Chernobyl Children" ribbon said the dog had had a cataract operation at the vet's...costing £600 (Can\$1500)! Upon my looking astonished she said "You think that noone in the camp has that kind of cash". I admitted that those were my thoughts. "Ah" said she, "my boy friend was stabbed by a drug dealer in Glasgow (not at the camp, which keeps hard drug-free, but in one of Glasgow's many down-at-heel housing complexes) and this was part of the criminal injuries board's compensation money..." She went off to plant flowers at the front of the camp bordering the road to alleviate complaints about "eyesores". The dog is still fairly visually challenged.

When Russia started to make ominous 'retargeting' noises, 2 out of the 3 Tridents went to sea (leaving only one at the base) - usually only one is out at any time. Of the three, one keeps nose-diving to the sea bed, and another has a serious nuclear reactor leak. The fourth ("launched" at Barrow with fanfare in October) is still at Barrow, as the swimming women did real hammer damage to the conning tower. One wonders if a real terrorist group could have blown the thing up. It has been suggested to me that there are several levels of security and at least the 'higher' levels (e.g. MI5) think they know demonstrators from terrorists. Can it possibly be true that they distinguish 'Trident Ploughshares 2000'

swimmers - all in wet suits with hammers - from more dangerous others, allow them to board the sub, and to strike and actually damage it with the hammers, without intervening? If this be so then security level 2 (MI5?) must string level 1 (MOD police?) along for a while to make them look foolish. That sounds even more dangerous than simple incompetence. An anti-war march from Glasgow city centre to Kelvingrove Park was organized by an 'ad hoc' committee. Mostly the usual suspects (Socialist Workers etc.) but I spoke to a Catholic woman who had come as a result of a pamphlet handed to her in a shopping centre and was happy to accompany someone not identified with the hard left, though we were walking behind the 'Humanist Party' banner. There was also a friendly policeman; I suggested he carry a "police for peace" sign though it might affect his promotion prospects. He said he had no such prospects and had in fact once put a tiny CND badge on his uniform only to be told to remove it. A simultaneous London event was addressed by Tony Benn and my old colleague Tam Dalyell.

One of the the three US soldiers captured by the Serbs was from Capac, Michigan. BBC TV last week broadcast a small vignette showing the sympathetic response from his home 'town'. As it happens, I have been to Capac. A place of some 1500 inhabitants, it lies just off the highway leading from Port Huron at the Canadian border (famous for the radical Port Huron Statement at the time of the Vietnam War) to the Lansings. Its unusual name is supposedly derived from that of the Inca kings. It is a bleak, isolated and seemingly economically challenged place. The supermarket on the edge of town was housed in a large shed. There appeared to be only one restaurant/bar where many locals congregated but which I chose not to patronise. I thought of the hazardous Atlantic journeys of the pilgrim fathers, the treks from New England across the North American continent, the winters, the conflicts with the indigenous peoples, the struggle to create a new society, the ploughs that broke the plain, and then this, after more than two centuries. What, I wondered, do the residents think? Do

they suppose it was worthwhile? It is hardly surprising that the US armed forces are a visible means of escape for some of the younger folk from Capac. One of them is now imprisoned in the Eastern Europe which many Americans left to find a greater prosperity in the New World. It is all an immensely sad way to end the millenium. Capac is a sad place, and the kid from Capac is both sad and unlucky, as are his captors. Those who sent him to his fate are sad and culpable, as are those who sent his captors to apprehend him. I hope this sadness and culpability is not about to enshroud us all.

Peter Nicholls

Dr Nicholls is a biologist at the University of Essex

International Week of Science and Peace

Call for Participation

IWOSP is a worldwide action week devoted to the topic "Science and Peace" which, since 1986, takes place annually during the week (Monday to Sunday) within which November 11th falls (Armistice Day). IWOSP events are autonomous. You may see more information about IWOSP on the website

<http://homepage.uibk.ac.at/homepage/csaa/csaa1214/iwosp.html>

If you or an organisation you are involved with would like your event to be part of IWOSP please contact me, the UK's IWOSP Coordinator...

**Alan Cottey, Tel 01508 492464
<a.cottey@uea.ac.uk>**

Letters

Of Coastal Erosion and Sea-front Nuclear Sites

I am very concerned about the building of nuclear power stations near the sea for cheaper cooling water, and the erosion of the British coast, and the cost of preventing these power stations going into the sea for 250 years, and how the government is now tackling the issue. I do think that it is a matter of importance, as a clear example of the stupidity of nuclear energy usage. Is there anyone out there who has done any work on this?
Richard Levicki email: richard@levicki1.freemove.co.uk (Student Member, SGR)

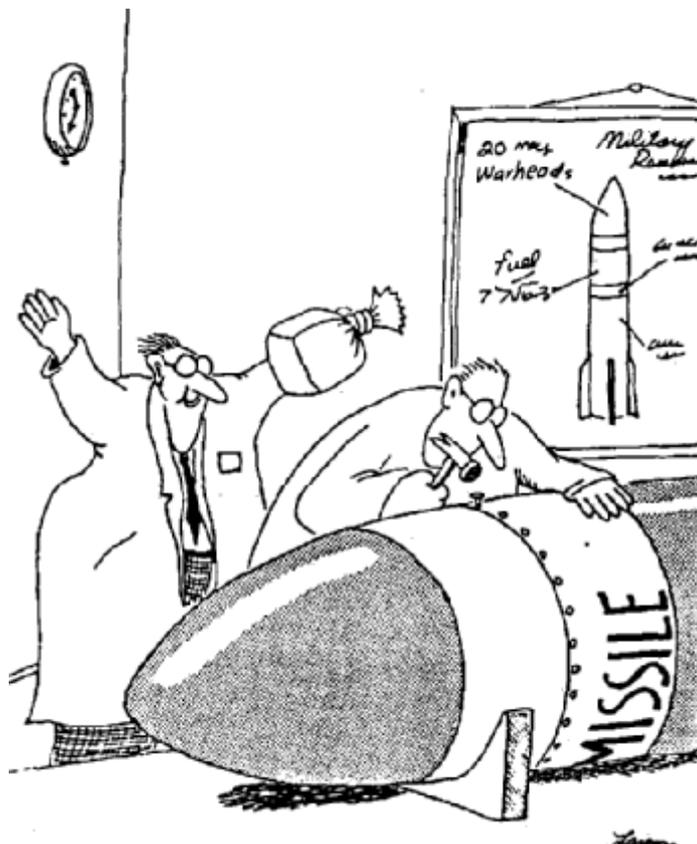
Announcement: Help Needed!

Dear Colleagues

Due to new commitments and duties outside SGR, I regret that I shall no longer be able to carry out a number of the duties I have been fulfilling on behalf of SGR. These are important tasks, and I am appealing for active and committed individuals to step forward and pick them up as soon as possible:

1. Press Work.

This is not as onerous a task as one might imagine; it does involve imagination, enthusiasm, and the willingness to generate news items and press releases, to 'go out' and put our messages to the press and media, and cooperate closely with the Chair and rest of the NCC. For this reason it is important to be willing to accept



nomination onto the NCC.

2. Other tasks involve fielding media inquiries and calls for expert advice on various topics etc. Whoever picks this up should have computer access to Internet and (preferably) also a fax machine. Personal skills should include excellent language skills, a good telephone and writing style, optimism and the willingness occasionally to act swiftly to 'seize the moment' with an issue.

3. Anyone picking up this post will be contacted by me towards the end of August and is welcome to receive all details of my current contacts and modus operandi.

4. GMO Issues Spokesperson/coordinator. Obviously the most important attribute here is qualification to speak about this issue, coupled with a willingness to listen to and distil the various perspectives arising from debate in a way which truly reflects the views of our membership. There is much debate still to be conducted on GMO topics, though the first part of the GMO question - that of GM foods - has already been covered by online debate

(and at our conference), and resulted in a position statement at the end of this Spring. The person who assumes this role would ideally have access to internet, and should also consider stepping onto the NCC.

5. Occasional Commissioning/Copy Editor, Newsletter. Working closely with Kate Maloney, our Administrator, Phil Webber (Chair) and Stuart Parkinson (who has volunteered to carry out editorial work occasionally), you would be involved in commissioning and copy editing articles on some or all of the four-yearly issues of the Newsletter. Evidently you would need excellent linguistic skills, access to Word for Windows or similar, and internet access on a regular basis. Occasionally you MIGHT be asked to help with layout. NCC membership is strongly recommended.

If you feel you are able to help with any of these key tasks, please contact Phil or Kate (see contact details in this Newsletter).

Thankyou!

Danielle Kaye

This issue of the SGR Newsletter was edited by Dani Kaye, with assistance from Kate Maloney and Phil Webber, and typeset by Karl Lam.

Stuart Parkinson will edit the winter issue. The main theme will be Climate Issues and the copy deadline is the end of November. Contributions should be sent to the SGR Office.

Articles in the SGR Newsletter reflect the individual views of the authors and do not necessarily reflect the views of SGR.

Events

Every Saturday

Vigil calling for the Release of Mordechai Vanunu

Noon - 2.00 p.m., Kensington High Street/Palace Green, London W8. Organised by and further info. from the Campaign to Free Vanunu and for a Nuclear Free Middle East.

Tel.: 0171-378 9324.

E-mail: campaign@vanunu.freeseve.co.uk

2 - 5 September 1999

News for a New Century

Debate at the Freedom Forum, London W1, and Conference at Taplow Court, Buckinghamshire. Organised by Conflict & Peace Forums/Transcend.

Tel: 01628-591 239/233

E-mail: indraadnan@poiesis.org

4 September 1999

All You Ever Wanted to Know about Human Genetics but Were Afraid to Ask

Briefing day organised by the Campaign Against Human Genetic Engineering

E-mail: cahg@globalnet.co.uk

4 September 1999

Thinking Ahead - Green Policies for a New Century

Conference at the Methodist Central Hall, London SW1, organised by the Socialist Environment and Resources Association.

Tel: 0171-263 7389

E-mail: SERAoffice@aol.com

7 September 1999

Environmental Technology Forum

at the University of Lincolnshire & Humberside (Lincoln Campus).

Fee: £88.12

Tel: 0181-682 3344

E-mail: michelle@one-events.com

Web site: www.envtech.co.uk

8 September 1999

Concert for Peace

at Sutton House, London E9. Organised by Musicians Against Nuclear Arms. Tickets: £5/£7.50

Tel: 0181-455 1030

11 - 12 September 1999

CND Annual Conference at the University of London Union, London WC1.

SGR has been invited to run a stall. If you can help, please contact the SGR Office for further info.

14 - 17 September 1999

Close Down the UK's Arms Supermarket

Protest against the Defence Systems and Equipment International (DESI) arms exhibition at Chertsey, Surrey (14 Sep) and London Docklands (15 Sep). Organised by Campaign Against Arms Trade.

Tel: 0171-281 0297

E-mail: campaigns@caat.demon.co.uk

26 September - 17 October 1999

People's Diplomacy, Non-Violence, Economic Rights and Ecological Struggles

7th International Course organised by the International University of People's Institutions for Peace in Rovereto, Italy.

Tel: + 39 464 4242288

E-mail: iupip@inf.unitn.it

30 September 1999

New Relationships in Aid

Meeting at the Institution of Civil Engineers, London SW1. Organised by the ICE Appropriate Development Panel.

Tel: 0171-655 2158

E-mail: torey_d@ice.org.uk

3 - 30 October 1999

Humanitarian Assistance

International Civilian Peace Keeping and Peace Building Course at the Peace Centre, Burg Schlaining, Austria. Fee: ATS#6,500 per week.

Tel: + 43 3355 2498

E-mail: aspr@aspr.ac.at

Web site: www.aspr.ac.at

10 - 13 October 1999

3rd European Motor Biofuels Forum, Brussels, Belgium.

Fees: £449.24-785.18.

Tel: + 31 30 693 3489

E-mail: info@europoint-bv.com

Web site: www.europoint-bv.com

10 - 29 October 1999

Global Power, Local Promise - Justice and Sustainability in a Global Economy

Course at the Schumacher College, Dartington, Devon. Fees: £1,350.

Tel: 01803-865934

E-mail: schumcoll@gn.apc.org

Web site:

www.gn.apc.org/schumachercollege/

13 October 1999

Lobby of Parliament organised by the Forum for UN Renewal.

Tel: 0171-930 0272

E-mail: unforum@gn.apc.org

Web site: www.gn.apc.org/unforum/

13 October 1999

The Montreal Protocol - 12 Years On

Half-day seminar at the the Institution of Civil Engineers, London SW1.

Organised by The Hazards Forum. Fees: £56/£70.

Tel: 0171-655 2158

E-mail: torey_d@ice.org.uk

If you are attending any of these events, don't forget to take along a few SGR leaflets, newsletters etc.

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