

**A Question of Insecurity:
the Politics of Assessing Accident Risks at
Sellafield & La Hague - the Story of the STOA
report
4th UK & Irish Local authorities Standing Conference
on Nuclear Hazards
Assessing Nuclear & Radiological Risk: are they
increasing or Reducing?
Tenby, 21 March 2002
by Dr David Lowry**

Introduction:

Everyone will have had in their conference pack the executive summary & general conclusions of the STOA report on:

**POSSIBLE TOXIC EFFECTS FROM THE NUCLEAR REPROCESSING
PLANTS AT SELLAFIELD AND CAP DE LA HAGUE.**

I will discuss how this report has been the subject of politicised science in the six months or so since it was completed at the end of August last year, following a year long study by nine expert authors based in the UK, US & France. Several of the authors are – or have been ministerial advisors – on the issues addressed in the report.

The expertise is unassailable....but the conclusions have certainly been challenged! Shortly after the STOA report was handed over to the STOA secretariat, the following press release was issued by BNFL.

“Act Now to Retain the Nuclear Option” Urges BNFL’s Chief Executive
BNFL Press release, 6 September 2001

Speaking this morning to an international audience of energy industry leaders and influential policy makers at the *World Nuclear Association* Conference in London, BNFL’s Chief Executive Norman Askew warned: “Nuclear energy must continue to play a significant role in the UK’s baseload electricity generation. Without nuclear’s contribution this country cannot have a continued secure, diverse and environmentally-friendly energy supply.”

You might say BNFL had unfortunately got their timing wrong as a matter of five days later, the terrible vulnerability of modern structures hitherto thought invulnerable was exposed by the dreadful terrorist attack on New York’s Twin Towers and the Pentagon

building –the headquarters of the Defense Department of the globe’s only nuclear superpower no less- in Washington DC!

I sent several letters to the editor to highlight the nuclear facility threat now made stark by the terrorist assault on the United States. Here is the text of one of them, to the FT.

*The Editor, Letters, Financial Times
15 September 2001*

Dear Sir

On Wednesday 12 September I attended the AGM of the Environment Agency as consultant editor. But I am also a concerned citizen, and took the opportunity to plead with Agency chairman, Sir John Harman, to prevail upon the prime minister as he chairs the civil contingencies committee, COBRA, not to give permission for the operation of the new plutonium fuels MOX plant at Sellafield.

On Friday you reported that the government are about to say yes to BNFL plans to open the Sellafield MOX plant (SMP) [BNFL set to get the go-ahead for new Mox plant, Sept.14] .

Three years ago the Agency advised ministers in its conditional 'decision letter' that many submissions had been made to its public consultation on the SMP, held over the summer of 1998, that the plutonium plant would add to global security problems, by putting the prime nuclear explosive into international commerce.

The Agency recommended that ministers look carefully into these concerns Sir John declined to pass on my worries, saying it was not part of the Agency's remit.

I would thus ask MPs to pass on political concerns over SMP to the prime minister and his cabinet colleagues.

It is hard to conceive of a more reckless and frankly stupid decision to give terrorists a new prime target in this week of all weeks.

yours with deep concern,

Dr David Lowry

A few days later, a Sunday newspaper picked up on the theme.

Terrorist fear over Blair nuclear plan

By Geoffrey Lean, Environment Editor
Independent on Sunday, 16 September 2001

Ministers are about to approve plans that would put enough plutonium to build hundreds of terrorist nuclear bombs into public circulation, *The Independent on Sunday* can reveal.

The plans are being pushed through by Tony Blair, despite opposition from Michael Meacher, the Environment minister. Yet the Prime Minister warned Parliament on Friday, in the wake of the destruction of the World Trade Centre, that terrorists would use nuclear weapons "if they could" and called for their attempts to obtain them to be "exposed, disrupted and stamped out".

Senior strategic experts yesterday accused him of being "either ignorant or irresponsible" in pressing ahead with the plans, which they said made it "virtually inevitable" that terrorist groups would get the atomic bomb.

The approval, expected early this week, is to allow a controversial new plant at Sellafield to start operation. The mixed-oxide (Mox) plant is designed to make fuel for nuclear reactors out of a mixture of uranium and plutonium - the raw material for nuclear bombs - which would then be exported around the world.

The £473m plant was built nearly four years ago by British Nuclear Fuels, which has been seeking government permission to start it up ever since. But approval has been held up, partly by Mr Meacher's opposition and partly because of a collapse in confidence in Japan, its main prospective customer, after The Independent revealed that data on fuel from a pilot plant had been falsified.

Mr Meacher has argued both that transportation of the fuel to Japan and elsewhere could be intercepted by terrorists and that the plant was unlikely to make money. But sources say that detailed papers prepared by his department to support his objections have not even been read by senior colleagues.

Under heavy pressure, especially from Mr Blair, who enthusiastically supports Sellafield, he has finally been forced to give way.

Yet Mr Blair told the specially reconvened House of Commons: "We know that these groups are fanatics capable of killing without discrimination. The limits on the numbers they kill and their methods of killing are not governed by morality.

"The limits are only practical or technical. We know that they would, if they could, go further and use chemical or biological or even nuclear weapons of mass destruction. We have been warned by the events of September 11. We should act on that warning."

The Foreign Secretary, Jack Straw, sounded a similar alarm.

Yesterday Dr Frank Barnaby, a former nuclear-weapons specialist at Aldermaston who became director of the Stockholm International Peace Research Institute, said that starting up the plant would "make it virtually inevitable that terrorists will acquire the plutonium they want from the fuel, and make nuclear weapons with it".

He said that it was "not technically demanding" to separate the plutonium out of the mixed fuel, or to make it into a bomb. A "second-year undergraduate" would be able to master the concepts involved.

This was repeated in other press reports.....

Sellafield nuclear plant could be prime target for terrorists: Experts warn of possible plane attacks

By Tania Branigan

The Guardian, Tuesday September 18, 2001

Nuclear reprocessing plants at Sellafield in Cumbria and Cap de la Hague in Normandy could be prime terrorist targets, experts warned yesterday, as the conference of the international watchdog on atomic energy opened in Vienna.

With the New York and Washington attacks dominating discussions, Spencer Abraham, the US energy secretary, warned that fanatics could wreak havoc by destroying plants or stealing materials to build their own weapons.

Governments around the world have put their facilities on maximum security, but officials admitted that little could be done to protect them from airborne threats which could cause a "Chernobyl situation".

"We cannot assume that tomorrow's terrorist acts will mirror those we've just experienced," Mr Abraham told the International Atomic Energy Agency (IAEA) conference. "Clearly, terrorists will attack any target, so no one will be immune. And clearly terrorists will use any method."

He added: "The terrible events of last week demonstrate in the clearest possible fashion the importance of maintaining the highest levels of security over nuclear materials.

"We expect the members of this body to prohibit nuclear exports in cases where there is a significant risk of diversion."

But delegates from the 132 member nations acknowledged that their ability to shield facilities is limited.

"It is practically impossible to protect nuclear plants to the extent needed to withstand the sort of attack we saw last week," said Melissa Fleming, spokeswoman for the IAEA.

"Consideration was given to the possibility of a plane crashing into them when they were designed and built. But over 20 years later, we have planes that are almost twice as big and are going on long-haul flights able to carry tonnes of fuel."

Dr Frank Barnaby, a nuclear physicist working for the Oxford Research Group, warned that Sellafield and Cap de la Hague were likely targets because they are home to the only reprocessing plants in Europe outside Russia.

"What are very big risks are the huge tanks of very, very radioactive liquid stored in reprocessing plants," he said.

"They contain a huge amount of radioactivity and are less well-protected than reactors, which are within very large concrete shields."

A spokesman for British Nuclear Fuels said both reactors and reprocessing plants were "extremely robust" and were designed to withstand accidents, including plane crashes.

But a US official, who declined to be named, said that a direct hit from an airliner could cause a "Chernobyl situation". Although it would not destroy a reactor, it could cause meltdown by damaging its cooling systems, allowing the fuel rods to overheat.

Dr Barnaby also warned that the proposed mixed oxide (Mox) plant at Sellafield, which is expected to get the go-ahead from the Department of Environment this week, would be another prime target, because it would provide a simple source of material for bombs.

"It's crazy to give permission to open a Mox plant under these circumstances," he said.

It was in this context that the STOA report was launched into the European Parliament system. You have the report's summary. Let me pick out a few highlights.

Sellafield and Cap de la Hague

1. Introduction

The principal aim of this report is to assist the Committee of Petitions of the European Parliament in its consideration of Petition 393/95 brought by Dr. W. Nachtwey. The Petition expresses concerns about radioactive discharges from nuclear reprocessing plants at Sellafield in the UK and La Hague in France, and their possible adverse health effects. Six years after the Petition was introduced, the Petitioner's main concerns remain relevant. This report concludes that reprocessing discharges are a valid matter for the Committee's consideration. It also concludes that, on balance, the Petitioner's concerns over radioactive discharges from Sellafield and La Hague are justified.

The report presents evidence and data on:

- radioactive discharges from the Sellafield and La Hague sites;
 - resulting nuclide concentrations in environmental media including foodstuffs;
 - radiation doses from nuclide discharges to critical groups near the sites;
 - adverse health effects near the two sites;
- and
- resulting collective doses from nuclide discharges.

The report also examines a number of current issues in radiobiology concerning health effects from exposure to ionising radiation, in particular

genetic and in utero effects.

In addition, in accordance with contract specifications, the report examines other major factors that might influence future decision-making on reprocessing. It provides information on the legal framework, the operational history of the plants and the economic case for reprocessing compared with available alternatives for spent nuclear fuel management. The report also makes policy-related recommendations that take into account current knowledge and uncertainties in risk assessment and the availability of alternatives to reprocessing in spent fuel management.

2. Reprocessing Status and Issues

Only 5% to 10% of world annual spent fuel arisings is submitted for reprocessing, with the rest stored pending final disposal in a repository. The largest centres in the world for commercial reprocessing remain Sellafield in the UK and La Hague in France. Reprocessing involves the dissolution of the spent fuel in boiling concentrated nitric acid and subsequent physico-chemical separations of uranium and plutonium. Multiple waste streams are created by these physical and chemical processes. While some wastes are retained and conditioned, considerable volumes of liquid and gaseous wastes are released to the environment. Reprocessing operations release considerably larger volumes of radioactivity than other nuclear activities, typically by factors of several 1,000 compared with nuclear reactors.

3. International and European Legal Framework

The report provides a brief overview of Major International Bodies that play a role in the development of international nuclear standards and the main International Conventions relative to nuclear reprocessing are presented. The OSPAR Convention for the Protection of the Marine Environment of the North-East Atlantic, to which the European Commission is a Contracting Party, is of particular relevance to reprocessing activities. The OSPAR Commission has declared its commitment to the application of the precautionary principle, the polluter-pays principle, and to the application of Best Available

Techniques (BAT) and Best Environmental Practice (BEP), including, where appropriate, Clean Technology. At the Sintra Meeting in 1998, Ministers agreed to reduce marine pollution “*with the ultimate aim of achieving concentrations in the environment near background values for naturally occurring substances and close to zero for man-made synthetic substances.*” They emphasised the importance of the Precautionary

*PE no. 303.110 - October 2001 Sellafield and Cap de la Hague
Sellafield and Cap de la Hague*

Principle in this work. It is notable that the commitment is to achieve concentrations in the environment close to zero, not merely concentrations in discharges. At the Copenhagen Meeting in June 2000, the OSPAR Commission voted unanimously (with the abstentions of the UK, France and the European Commission) that discharge authorisations be reviewed “*with a view to, inter alia: implementing the non-reprocessing option (for example dry storage).*”

The Euratom Treaty provides the basis for the European regulation of the nuclear sector. Article 34 requires Member States to obtain the opinion of the European Commission before they carry out “*dangerous experiments.*” According to the Commission, France has not requested the Commission’s opinion under Article 34 concerning activities in La Hague nor has the UK as regards activities in Sellafield.

Conclusions on “Dangerous Experiments”

The Member States UK and France apparently have not complied with Article 34 of the Euratom Treaty, since they have never requested the European Commission’s opinion under the article concerning any of their activities at Sellafield and La Hague.

Article 35 of the Euratom Treaty grants control rights to the European Commission for the verification of operation and efficiency of monitoring equipment at nuclear facilities. However, only one verification mission was carried out at Sellafield (1993) and La Hague (1996). These are considered to be outdated. Furthermore, the Commission is apparently highly dependent on information provided by Member States. It is equally doubtful whether the

Commission is in a position to determine, as required under Article 37, whether the reprocessing activities are liable to result in the radioactive contamination of the water, soil or airspace of another Member State. In addition to the dependence on Member States' information, the Commission spends only extremely limited manpower into the evaluation of nuclear projects (2 person-months in the case of reprocessing plants).

Conclusions on European Commission Responsibilities under Article 35 of the Euratom Treaty

The Commission's verification activities make ineffective use of its control rights over monitoring equipment. Statements by the Commission on monitoring at Sellafield and La Hague are not backed up by credible data. It is noted, however, that the Commission is currently reviewing its verification activities.

The Commission is apparently not in a position to guarantee that the Basic Safety Standards are respected concerning the La Hague and Sellafield facilities and to determine whether the reprocessing activities are liable to result in the radioactive contamination of the water, soil or airspace of other Member States.

4. Risk Assessment of Radioactive Releases

Radioactive discharges from both sites are very large and indeed rank among the largest anthropogenic sources of radioactivity to the world. As such they constitute a reasonable subject for enquiry by the Committee. Nuclides released to air and sea result in the contamination of food chains via a number of pathways. Individuals may also receive radiation doses from immersion in radioactive aerosols, inhalation of radioactive gases and particulate matter, and ground shine from nuclides deposited on land.

Various computer models have been designed to estimate radiation doses from nuclide releases to members of critical groups living near nuclear facilities. These calculated doses are used to regulate discharges from nuclear facilities. However, this approach protects individuals and not populations. The use of collective doses has therefore been stipulated by various international

bodies, including the European Commission in the Basic Safety Standards Directive (96/29). Crucial theoretical underpinning for collective dose was provided by the scientific community's adoption of the Linear No-Threshold model for radiation's adverse health effects. This states that there is no level of radiation exposure below which there is no effect: risks continue with declining doses until zero dose. Even the smallest possible dose, i.e. a photon passing through a cell nucleus, carries with it a risk of cancer. Although this is an extremely small risk, it is still a finite risk.

Collective dose estimates strongly depend on the size of the population considered and the time scale used. Opinions vary as to which populations and time scales should be used. Given the very long term half-lives of some radionuclides released by reprocessing plants (e.g. iodine-129, 16 million years) and their global distribution, there should be no time limits and dose evaluations should be global. There is no reason why future generations or distant populations should be any less protected than current generations in the vicinity of the facilities. Comparisons of doses from nuclear activities with those induced by natural background radiation are flawed because, inter alia, these omit to indicate the health impact of background radiation itself. It has been estimated that natural background radiation results in about 6,000 to 7,000 UK cancer deaths per year in the UK with a similar figure for France.

Conclusions on Dose Estimates

In order to evaluate the risk of large releases of radionuclides into the environment, in addition to critical group dose estimates, collective dose calculations should be carried out and taken into account during decisions on the continued operation of reprocessing plants.

5. Case Study Sellafield

Between 1965 and the end of year 2000, about 26,000 tonnes of spent gas graphite fuel were reprocessed by the B205 line at Sellafield. About 3,000 tonnes of spent light water reactor fuel have been reprocessed at THORP since 1994. Based on current contracts and annual throughput rates, both plants are expected to

shut down within the next 10 years or earlier.

Although gaseous releases of most nuclides from Sellafield have not varied to a marked extent since the 1970s, iodine-129 emissions have increased 10-fold. Radioactive marine releases of carbon-14, strontium-90 and caesium declined markedly in the early 1980s, while in the mid 1990s increases occurred in releases of carbon-14, cobalt-60, strontium-90, technetium-99 and iodine-129. Over the same period, actinide (mainly plutonium) discharges have declined markedly.

Internal BNFL documents suggest significant increases in nuclide releases in the future at Sellafield. For some “*worst case*” scenarios, the operator predicts for “*levels approaching or above the limits*” for sea discharges of over half the currently authorised radionuclides. A similar situation is expected for aerial releases.

Conclusions on Sellafield Releases

Increases of releases of key radionuclides from Sellafield in the late 1990s and expected future discharges are inconsistent with obligations under the OSPAR Convention.

The deposition of plutonium within 20 km of Sellafield attributable to aerial emissions has been estimated at 160-280 GBq (billion becquerels), that is two or three times plutonium fallout from all atmospheric nuclear weapons testing. In addition, significant quantities of radionuclides can become airborne in sea spray and be transported inland by the wind. The average activity due to actinides from the sea may occasionally exceed the international limit of 1 mBq/m³.

It has been estimated that over 40,000 TBq (trillion becquerels) of caesium-137, 113,000 TBq of beta emitters and 1,600 TBq of alpha emitters have been discharged into the Irish Sea since the inception of reprocessing at Sellafield. This means that **between 250 and 500 kilograms of plutonium from Sellafield is now adsorbed on sediments on the bed of the Irish Sea**. The migration of undersea deposits of actinides to coastal environments represents a long-term hazard of largely unknown proportions. Technetium-99 (half-life 214,000 years) discharges have led to particular concern. In

1997, technetium concentrations in crustacean – particularly in lobster – reached 13 times the European Council Food Intervention Level (CFIL) in the vicinity of Sellafield. Some technetium concentrations above CFIL limits have also been found in molluscs (winkles, mussels, limpets and whelks). Recent environmental surveys along the Norwegian coast indicate a six-fold increase in technetium concentrations in seaweed since 1996. Concentration factors are greater than 1,000 for some biota such as macrophytic brown algae, worms and lobsters and are particularly high for some seaweeds (around 100,000). In 1999, a number of high concentrations of various radionuclides were also recorded in fish, shellfish, sediments and aquatic plants, some exceeding CFILs several times. Large uncertainties remain in the field of transfer of technetium in the biosphere.

Conclusions on Radionuclide Concentrations in the Sellafield Environment

Marine discharges at Sellafield have led to significant concentrations of radionuclides in foodstuffs, sediments and biota. Discharges lead to current concentrations in some foodstuffs, which exceed European Community Food Intervention Levels (CFILs). The transfer of technetium to the biosphere is of particular concern, because of its long half-life (214,000 years), its mobility in seawater and the high concentration factors in plants. Large uncertainties remain as to the transfer mechanisms and environmental fates of many radionuclides.

During the 1970s and 1980s, peak doses to critical groups in the Sellafield region possibly reached 2.5 to 3.0 mSv per year (as compared to a dose constraint of 0.3 mSv in the UK and 1 mSv in the EU). Latterly, doses to marine-related critical groups have declined to about 0.2 mSv per year.

A recent study commissioned by the German Federal Office for Radiation Protection, using German statutory dose assessment assumptions, calculated that annual doses from consumption of contaminated foodstuffs were more than 5 times the annual limit imposed by the European legislation and about 20 times the annual dose

constraint used in the UK and Germany. Most of the dose was received via the technetium contaminated seaweed fertiliser/animal feed/meat consumption pathway. The conclusion of the German study was that the Sellafield reprocessing facilities would not be “licensable” in Germany. European legislation does not prescribe specific assumptions in dose assessment models. The European Commission has responded that “*the guidance currently being produced on realistic dose assessments will comment on this issue.*”

Conclusions on Doses Induced by Sellafield Discharges

Discharges to the Sellafield marine environment have led in the past to doses to critical groups exceeding 10 times current UK and 3 times EU limits. The doses calculated by the UK administration from current environmental radionuclide concentrations reach respectively 2/3 and 1/5 of the UK and EU limits. These doses remain problematic, considering that doses from past discharges and from direct radiation are *not* included. Doses calculated under German statutory dose assessment assumptions exceed UK and EU dose constraints. In addition, German dose limits for organs (also used in the US but not in the rest of the EU) would also be exceeded by the ingestion of relatively small quantities of seafood from Sellafield. The Sellafield reprocessing plants would not be licensable in Germany. Also very large uncertainties in dose estimates remain, with differences between 5th and 95th percentiles often exceeding several orders of magnitude. This raises the question of whether “realistic” assessments should be used rather than “conservative” dose assessments. The risk potential of certain hazards at Sellafield is very large. Liquid high level wastes currently stored at Sellafield contains about 7 million TBq (2,100 kg) of caesium-137, which is about 80 times the amount released through the 1986 Chernobyl accident. Assuming a 50 percent release of caesium-137 in an accident at Sellafield, population dose commitment would range up to tens of millions of person-Sv resulting in over a million fatal cancer cases.

Conclusions on Hazards Posed by Liquid

High Level Waste at Sellafield

The hazard potential of liquid high level wastes in particular is very high. A serious accident might lead to large releases of radioactivity and on the long term globally to over one million fatal cancer cases.

Higher incidences of childhood leukaemia than expected were first identified near Sellafield in 1983. The cause or causes of the observed increases in childhood leukaemia near Sellafield have not been determined, nor is it known whether a combination of factors is involved. The UK Committee on the Medical Aspects of Radiation in the Environment (COMARE) has stated: *“As exposure to radiation is one of these factors, the possibility cannot be excluded that unidentified pathways or mechanisms involving environmental radiation are implicated.”*

Various hypotheses, including paternal preconception irradiation and population mixing have been advanced without being conclusive. Possible explanations for the discrepancy between observed cancers and estimated low doses include erroneous dose assessments (in particular foetal doses) and uncertainties as to the parameter of “dose” and what it measures. Besides childhood leukaemia, other areas of concern have arisen, including reports of increased incidence of retinoblastoma in children and a statistically significant increase in stillbirth risk in the Sellafield region.

Conclusions on Health Effects from Reprocessing at Sellafield

More than fifteen years of research has established that the excess incidence of childhood leukaemia around Sellafield is statistically significant and is continuing. The cause or combination of causes of the observed leukaemia increases are not known. Many uncertainties remain. Radiation exposure due to radionuclide releases from Sellafield cannot be excluded as a cause for the observed health effects.

6. Case Study La Hague

Between 1966 and the end of 2000, about 21,000 tonnes of spent fuel have been reprocessed at La Hague. Most waste generated at La Hague has remained unconditioned – in other words they

were not stabilised and packaged for long term or permanent storage – for many years, and some is stored under very unsatisfactory safety conditions, including over 9,000 m³ (or 39,000 containers equivalent) of plutonium contaminated sludge.

In 1999, the total radioactivity released by La Hague to the environment was 15,000 times higher than that released by a nearby nuclear reactor. While releases of some radionuclides (e.g. technetium-99, plutonium) have decreased or remained constant, releases of other radionuclides from La Hague have significantly increased over the past decade. These include liquid discharges (iodine-129 x 5; tritium x 3) as well as gaseous releases (carbon-14 x 8; krypton-85 x 5; tritium x 3). Also, some important radionuclides are not measured at all, including chlorine-36, technetium-99, and strontium-90 aerial emissions.

Conclusions on La Hague Releases

Releases of radioactivity from La Hague to the environment are several orders of magnitude larger than releases from a nuclear reactor. Releases of some radionuclides have decreased in the past while liquid and gaseous discharges of other key radionuclides have increased significantly. A further group of radionuclides is not being measured in effluents. Increases of radioactive releases from La Hague in the 1990s and expected future discharges are in violation of obligations under the OSPAR Convention. There have been numerous accidents at La Hague, some involving significant radioactive releases. For example, as a consequence of a severe discharge pipe break in 1980, doses to individuals of the critical group (fishermen) exceeded the annual EU limit of 1 mSv by 3.5 times. Main potential hazards at La Hague are linked to the risk of fires and explosions in the storage pools, in the vitrification plants or in the effluent treatment plants, and to the risk of dispersion of the caesium-137 stocks in the spent fuel pools, or of the separated plutonium stocks.

Conclusions on Accidental Releases from La Hague

Past accidents at La Hague include at least one

accident that led to population doses significantly exceeding EU limits. Accidents are estimated to be responsible of 36% of the leukaemia risk level for the 0-24 year age category around the La Hague site. The hazard potential of the La Hague spent fuel stores is very large. The accidental release of a fraction of the caesium inventory in the cooling pools could cause up to 1,5 million fatal cancers.

Concentrations of most of the nuclides measured in samples taken in the La Hague environment reached their peak during the 1980s. Nuclide concentrations have decreased on average unequally, depending on nuclides and samples, by factors between 5 and 50 if compared to 1997 levels. These developments do not reflect the large increases in releases of some radionuclides (in particular tritium, iodine-129 and carbon-14). However, there is a notable lack of complete series of data and redundant measurements. Occasionally, there have been samples taken that exceed EU Community Food Intervention Levels (CFILs), in particular in crabs. While most of the samples are taken and measured by operators, it is remarkable that the highest readings were obtained by independent measurements.

Conclusions on Radionuclide Concentrations in the La Hague Environment

Radionuclide concentrations in the La Hague environment have generally decreased since the 1980s. However, a comprehensive trend analysis is difficult or impossible because of missing data on some key radionuclides. The sampling and analysis should be significantly extended in order to guarantee redundancy and a thorough analysis of the impact of the large increases in releases of some radionuclides during the 1990s.

Calculated doses from routine radionuclide releases of the La Hague reprocessing plant generally remain small and well within the EU limits. However, the uptake of radioactivity taken into account in critical group scenarios is very small and can be reached with very small amounts of higher contaminated foodstuffs.

Doses can increase accordingly through the consumption of such foodstuffs. The cumulative effective doses induced by the consumption of

seafood, as calculated under German statutory dose assessment assumptions, significantly exceed German and EU dose constraints. It is questionable whether the current French practice of dose assessment can be considered conservative.

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Conclusions on Doses Induced by La Hague Discharges

Calculated doses from routine releases at La Hague generally remain well within EU limits. However, doses calculated under German statutory dose assessment assumptions exceed German and EU dose constraints. The La Hague reprocessing plants would not be licensable in Germany. The current French dose assessment practices do not appear to be conservative.

In 1983, morbidity was found to be higher than expected in the greater La Hague area for men in case of leukaemia and respiratory organs, and for women in case of leukaemia and lung cancer.

Moreover, mortality data show an increased rate of cancers for the digestive organs in the Department. In 1995, a study identified an excess of leukaemia cases among persons aged 0-24 years living in the canton about 10 km from the La Hague plant. **In 1997 case control study, the authors claimed “convincing” evidence for a causal role in childhood leukaemia for environmental radiation exposure from recreational activity on beaches and fish and shellfish consumption.**

In 1999, the GRNC (Groupe Radio-écologique Nord-Cotentin) reported that the contribution to doses from nuclear facilities was low, as regards the increased incidence of leukaemia revealed in earlier epidemiological studies. While GRNC calculated individual doses up to six times higher than the operator values, these did not exceed 6% of the EU annual limit. The report stated that the result was an average estimate and that uncertainty margins were not quantified. The quantification of these uncertainties is currently underway.

In June 2001, a new study confirmed earlier findings on leukaemia in the La Hague region. The study indicated that the increased incidence was continuing, and provided more data to allow

statistical significance to be established for the increases in leukaemia in the La Hague area.

Conclusion on Health Effects around La Hague

A statistically significant increase in the incidence of leukaemia in the La Hague area has been established. This increase is continuing. There is, as yet, no conclusive evidence for a causal link to radioactive releases from La Hague. However, these cannot be ruled out as a factor contributing to the health effects observed.

The assessment of doses and their effects are surrounded by many uncertainties. These include errors in assumptions on parameters, errors in computer codes, measurement errors and paucity of environmental monitoring. GRNC has identified more than 4,000 parameters, including 200 critical parameters, in its methodology to assess dose impact.

On the question of iodine-129 releases, WISE-Paris has quantified the differences between the theoretical activity in spent fuel and the activity discharged to sea and air. Large gaps are observed in the beginning of the 1990s, as only 50% of the theoretical values were reported discharged. In the worst case, the committed collective dose from non-attributed iodine-129 in the period 1989-1999 would be about the magnitude of a serious nuclear accident such as the Windscale fire (Sellafield) or the Kyshtym (Russia) waste explosion in 1957.

The Precautionary Principle is clearly laid down in various binding international agreements (e.g. Agenda 21, EC Treaty). **In 1992, Agenda 21 pointed out that radioactive wastes are among *“the contaminants that pose the greatest threat to the marine environment.”*** The Earth Charter of March 2000 calls notably to *“place the burden of proof on those who argue that a proposed activity will not cause significant harm, and make the responsible parties liable for environmental harm.”*

Conclusions on Uncertainties and the Precautionary Principle

Many uncertainties remain regarding dose assessments. In addition, error margins may be large and might modify assessed doses significantly. Under these conditions, the

continued release of large quantities of radionuclides into the environment from Sellafield and La Hague violates the Precautionary Principle.

7. Comparative and Cumulative Analysis

Differences exist in effluent treatment between Sellafield and La Hague. Carbon-14 which is the major contributor to collective doses, for example, is partially removed from air emissions at Sellafield while all of it is released at La Hague. Its abatement is not considered cost effective by Cogema.

In 1999, a representative year, releases from La Hague and Sellafield were broadly comparable. In general terms, La Hague discharges were marginally greater than those from Sellafield, except for iodine-129 and tritium air emissions and technetium-99 liquid discharges.

Until 1992, Sellafield and La Hague released a total of some 1.2 tonnes of iodine-129 to the environment. This is several hundred times that

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released at Chernobyl. In the period 1993-1998, a further 1.7 tonnes of iodine-129 were discharged (of which 80% from La Hague). Iodine-129 discharged from La Hague and Sellafield in 1999 alone was eight times greater than that released by the fallout from all nuclear weapons testing.

Conclusions on Comparative and Cumulative Analysis

In 1999, radioactive releases to the environment from La Hague and Sellafield were broadly comparable. Iodine-129 discharged from La Hague and Sellafield that year was eight times greater than the total iodine-129 released by the fallout from all nuclear weapons testing.

The estimated global collective dose of a decade of radioactive releases from Sellafield and La Hague (77,000 manSv) corresponds to about 1/7 of the collective dose from the Chernobyl accident, or to a Kyshtym scale accident every year. This raises the question of the justification of these releases as required under the radiological principles of the International Commission on Radiological Protection. Also, in conventional cost-benefit studies,

monetary values are attributed to a human life. When applied to untruncated global doses from 10 years' of Sellafield and La Hague releases, very large sums are obtained (£ 1.8 and 5.9 billion – respectively 2.9 and 9.4 billion Euro): the amounts that therefore could be spent on abatement measures comfortably exceed annual operating profits at each site.

8. Alternative Options

Non-reprocessing options, and available dry storage technologies in particular, are considerably less expensive than reprocessing. In addition, their social and political acceptability are much greater than reprocessing. Nuclear utilities are increasingly moving towards dry storage solutions, including utilities in the US, Canada, Germany, Russia and many eastern European countries. Direct disposal options also significantly reduce waste volumes to be disposed, due to the large volumes generated by reprocessing.

General Conclusions

Reprocessing of spent nuclear fuel at Sellafield and La Hague constitute the world's largest man-made releases of radioactivity into the environment, corresponding to a large-scale nuclear accident every year. Some of the radionuclides released in great quantities have half-lives of millions of years. Concentrations identified in recent years in the environment repeatedly exceeded EU Community Food Intervention Levels (CFILs).

The 1990's trend to large increases in the discharge of certain key radionuclides at Sellafield and La Hague and planned increases in releases constitute a violation of the letter and spirit of the OSPAR Convention.

Accidental radionuclide releases from Sellafield and La Hague could be two orders of magnitude larger than the Chernobyl disaster releases and could lead globally in both cases to over one million fatal cancers in the long term.

The European Commission does not effectively use its verification rights. The Commission is highly dependent on information provided by Member States and is therefore apparently not in a position to guarantee that the Basic Safety Standards are respected in the La Hague and

Sellafield facilities. It is doubtful whether the Commission is in a position to determine whether the reprocessing activities are liable to result in the radioactive contamination of the water, soil or airspace of another Member State.

Operational and/or accidental releases from Sellafield and La Hague have led in the past to population doses that exceed current EU limits. Reprocessing alone accounts for about 80% of the collective dose impact of the French nuclear industry. In the UK, about 90% of nuclide emissions and discharges from the UK nuclear programme result from reprocessing activities. In the surrounding regions of Sellafield and La Hague a statistically significant increase in the incidence of leukaemia has been established. While research on the causal relationship with environmental radiation has not been conclusive, it cannot be ruled out that exposure to radiation is an initiating or at least a contributing factor. There are great uncertainties involved in the assessment of population doses and subsequent health effects. The release of large quantities of long lived radionuclides at Sellafield and La Hague therefore violates the Precautionary Principle, laid down, inter alia, in the European legislation, Agenda 21 and the Earth Charter of March 2000.

Part of the STOA study was put into the public domain in the aftermath of September 11. In France this caused an immediate political effect. Here is *Le Monde*....

Un avion sur la Hague créerait un Tchernobyl, selon une étude pour l'Europe

LE MONDE | 15.09.01 | 15h39

MIS A JOUR LE 15.09.01 | 15h40

[EXTRACT]

La chute d'un avion sur l'usine de la Hague pourrait avoir des conséquences comparables à celles de l'accident de Tchernobyl. C'est ce que conclut une étude réalisée pour la direction générale de la recherche de l'Union européenne et dont Le Monde a pu prendre connaissance. Achevée fin août et présentement analysée par le programme STOA (Scientific and Technological Option Assesment) de la direction de la recherche, l'étude, qui devrait être publiée à l'automne, a été menée par le cabinet de consultants nucléaires WISE-Paris. Elle porte sur l'ensemble des "effets toxiques possibles" des usines de retraitement nucléaire de Sellafield et de la Hague (Manche). Un de ses chapitres s'intéresse aux accidents majeurs pouvant affecter ces installations.

Selon le document, le principal risque en cas d'un tel événement se situerait dans les piscines de refroidissement de l'usine de la Hague : c'est là que sont stockés les combustibles usés issus des réacteurs nucléaires. Ces combustibles sont extrêmement chauds et doivent être refroidis plusieurs années avant de

The UK government gave the go ahead for the Sellafield Mox plant on 3 October.

In the UK Parliament on 4 October, Labour MP Alan Simpson said
“..We ought to reduce risk, rather than making citizens feel insecure. As a Government, we should reconsider the decision to approve a MOX reprocessing plant. Hitting one nuclear power station would result in the unleashing of 200 Chernobyls. That would be the scale of the disaster if an airliner was flown into a nuclear power station.”

An the Irish media reported the outrage of the Irish Government. The *Irish Times* of 5 October said “The Government confirmed last night that it is to take a case to the European Court of Justice following the decision by the British government to expand nuclear reprocessing at Sellafield.

It is also considering offering information and support to British community and environmental groups also planning to fight the expansion. The spokesman said it was believed legal action through the British courts was being considered by a number of these groups. A Government spokesman said the action would be pursued on the basis of alleged infringement of two European Treaties.”

It reported Taoiseach, Mr Ahern’s aims to raise the matter directly with British Prime Minister Tony Blair. Liam Fitzgerald (FF) warned strongly in the Seanad in Dublin that he “believed the House would agree, in view of what had happened in the US recently, that the planned expansion constituted a potential act of treachery against a friendly neighbour.” And Dr Maurice Manning, Fine Gael leader in the House, said "Yesterday, we saw, in one short arrogant statement, the British minister Margaret Beckett dismiss all of the Irish claims and fears. This was a matter of minor provincial interest as far as she was concerned and all Irish considerations simply did not matter."

In London, the Mayor’s environmental advisor, Darren Johnston, wrote to the British energy minister, Brian Wilson, on 16 October following publication of a new report on the rail transport on nuclear waste, prepared by an all party committee. He wrote:

Nuclear waste transport through London

Dear Mr. Wilson

“The Greater London Authority has today launched its report of the investigation into the transport of nuclear waste by rail through London, a copy of which I enclose. I draw your attention, in particular, to the paragraph 3.27, in which we highlight the need for attention to be paid to the threat from terrorist attack, particularly in the light of the events of 11th September in the United States.

I also understand that movements of hazardous nuclear materials in the United States have been suspended because of the current terrorist threat, and I therefore urge the Government to take a lead from the United States on this issue and introduce a similar suspension.”

At Westminster, MPs had started to ask questions about nuclear security:

Sellafield (MOX Facility), 16 October 2001 : Column: 1152W

Conservative Peter Ainsworth asked the Secretary of State for Trade and Industry if she would make a statement on security arrangements at the MOX facility at Sellafield.

Energy minister Brian Wilson replied that “ Security at the Sellafield MOX plant complies fully with the standards set by the Director for Civil Nuclear Security, the Government's security Regulator. The Office for Civil Nuclear Security has taken account of the events in the United States of America on 11 September and continues to be satisfied that the security arrangements to be applied by BNFL will provide effective security once the plant starts to operate.”

Nuclear Security, 22 October 2001, col.7

Labour's David Chaytor asked the Secretary of State for Trade and Industry if she would place in the Library a copy of the report by the Office for Civil Nuclear Security on nuclear security.

Brian Wilson said “ When the Office for Civil Nuclear Security joined the Department of Trade and Industry on 1 October 2000, the Minister announced that the Director would make an annual report which would be placed in the Library of both Houses. No report has yet been received as OCNS has not yet been part of the Department for a full financial year. **I expect to receive a report in March 2002.** He promised to place the in the Library of the House of Commons.

Mr Chaytor also asked the Secretary of State for Trade and Industry if the terms of reference for the review of nuclear security being conducted by the OCNS include the security implications of commissioning the Sellafield MOX plant and the transportation of MOX fuel to overseas customers.

Brian Wilson said “All aspects of the security of nuclear installations and transportation of nuclear material are kept under continuing review by the Director of Civil Nuclear Security, who regulates security in the civil nuclear industry.”

Shortly after, WISE-Paris produced a paper on aircraft risks to Sellafield, for a UK independent television company, in support of a programme on the hazards of sensitive industrial plants. Here are some extracts.

1. Sellafield Particularly Exposed to Plane Crash Risk

Among the nuclear facilities located on the British territory, the scenario of a targeted plane crash on BNFL's Sellafield facilities would be the most extreme in terms of impact on the environment and public health: the spent fuel reprocessing facilities in Cumbria represent an inventory of radioactive substances several orders of magnitude larger than that of a nuclear power station. The site is used to store hundreds of cubic meters of liquid high level waste, thousands of tons of irradiated fuel, tens of tons of separated plutonium.

Sellafield vulnerability regarding an aircraft crash stems in particular from the 1,550 m³ of liquid high level waste in storage, which represent a non conditioned and therefore very volatile inventory of liquid fission products. In addition, over 75 t of separated plutonium in powder form were in storage on the site as of 31 December 2000¹.

....The unavailability of the vitrification facility, which has achieved a production of only 34% of its nominal capacity over the last decade, made the temporary stock of liquid fission products grow to more than 1,550 m³ as of September 2001. That situation has been considered unacceptable by the Nuclear Installations Inspectorate in late September 2001. The subsequent closure of the two reprocessing plants on 22 September 2001 can be interpreted as BNFL's response to the NII warning.

from the nuclear reprocessing plants at Sellafield (UK) and Cap de la Hague (France)". This has become urgently necessary, as there have been a number of reports in the press, which have misrepresented this decision of the Panel.

The study was prepared by an external contractor, WISE-Paris, in the context of the STOA Workplan 2000, on the basis of a request submitted by the European Parliament's Committee on Petitions. At its meeting of 23 October 2001, the STOA Panel, which is responsible for all political decisions related to the work of STOA, took note of the study submitted by the contractor and agreed to publish it as a first contribution to the scientific debate on the possible toxic effects from the nuclear reprocessing plants in Sellafield and Cap de la Hague.

According to the decision of the Panel, the study will be published together with a letter from the Chairman of the STOA Panel explaining the decision, as well as the evaluation reports of experts, whose opinion was formally requested by the STOA Panel. The Panel decided on 21 June 2001 to request the opinion of independent experts after discussing the concerns expressed by some Members of the European Parliament in relation to the possible lack of objectivity of the study by WISE-Paris. On 23 October the Panel took note of the opinions expressed by the reviewers and found it appropriate to communicate this information to the public, if so agreed by the reviewers.

I would point out that, **as is the case with all studies commissioned by STOA, publication of this study does not imply adoption of its contents and these do not necessarily reflect the views of members of the STOA Panel, or the European Parliament.**

In the context of its open approach, the Panel is prepared, if requested by a parliamentary committee, to proceed to a supplementary study, which will take due account of the opinions of political and social groups concerned, as well as of a wide range of prominent scientists in the fields relevant to the subject. The new study should be seen as an additional contribution to the effort of STOA to enrich the political debate with the most objective and comprehensive scientific and technical information possible on this subject.

The STOA Panel further agreed to encourage the Petitions Committee to organise a public hearing on the subject, at a time that the committee will consider appropriate,

-that date is now fixed at 17-18 April-

in collaboration with STOA, as well as, if the committee so decides, with other interested committees of the European Parliament. Such a hearing would give an opportunity to all interested parties to formulate their positions and provide all data necessary to support them. The Panel places great value in an open event of this kind, as the best way of treating a subject on which significantly divergent opinions may exist.

Finally, the STOA Panel expresses regret that WISE-Paris saw fit to break the confidentiality clause in its contract with the European Parliament by making public parts of the study prior to publication. This behaviour of WISE-Paris is not in line with the long-standing tradition of STOA, which has always endeavoured to associate its work with the highest scientific and ethical standards.

Brussels, 30 October 2001
Professor Antonios TRAKATELLIS, MD, PhD
Chairman of the STOA Panel

A day later the global nuclear watchdog body, the UN's International Atomic Energy Agency (IAEA) acknowledged the danger of nuclear terrorism warning of "the potential of terrorists targeting nuclear facilities or using radioactive sources" and the need for IAEA to "actively reinforce safeguards" and "upgrade our safety and security services."

The IAEA also declared that "radiation knows no frontiers" and warned **that "safety and security of nuclear material is a legitimate concern of all states."** Regarding potential sabotage, the IAEA said: "There is no sanctuary anymore, no safety zone."
(<http://www.nci.org/new/iaea-1101pr.htm>)

Paul Leventhal, President of the Washington DC-based Nuclear Control Institute (NCI) commented: "More separated plutonium has been produced in civilian than military nuclear programs worldwide. Unless commercial reprocessing of spent fuel is halted, there will be nearly twice as much weapons-usable plutonium in civilian than military programs by the end of this decade. Civilian plutonium, like plutonium removed from weapons, should be disposed of as waste, not used as fuel."

NCI also challenged the IAEA's statement that the damage caused by large commercial aircraft to a power reactor containment "is still a matter for analysis. "This appears to be a significant back-tracking from the statement issued by an Agency spokesman shortly after the September 11 attacks," Leventhal said. **David Kyd, the IAEA spokesman, stated on September 18 that if terrorists crashed a jumbo jet into a nuclear power plant, "the containment could be breached and the cooling system of the reactor could be impaired to the point where radioactivity might well be set free."**

A spokesman for the German nuclear power industry recently acknowledged that "no power plant in the world could withstand an airborne terror attack like the one on September 11." (www.nci.org/01/10/16-1.htm)

Dr. Edwin Lyman, a physicist and NCI's scientific director, notes that a direct, high-speed hit by a large commercial passenger jet "would in fact have a high likelihood of penetrating a containment building" that houses a power reactor. "Following such an assault," he said, "the possibility of an unmitigated loss-of-coolant accident and significant release of radiation into the environment is a very real one." Such a release, whether caused by an air strike, or by a ground or water assault, or by insider sabotage could result in tens of thousands of cancer deaths downwind of the plant. A number of these plants are located near large cities. (An abridged version of Dr. Lyman's analysis is available at <http://www.nci.org/01nci/09/aircrashab.htm>.) NCI shared Dr.

*Further information about nuclear terrorism, physical security, and materials safeguards are available on the Nuclear Control Institute website at <http://www.nci.org>, particularly the Nuclear Terrorism section at www.nci.org/nci-nt.htm

Back in Britain, MPs were firing further pointed questions to ministers

Nuclear Sites (Security), 6 November 2001, Column: 160W

Labour's Paul Flynn asked the Secretary of State for Trade and Industry what plans she had to install anti-aircraft batteries at Sellafield and other nuclear plants; and what discussions she has had with her French counterpart following the French Government's decision to place anti-aircraft missiles around French reprocessing facilities.

Brian Wilson responded saying "The UK's civil nuclear sites apply stringent security measures regulated by the Office for Civil Nuclear Security (OCNS), the security regulator. The security regulator works closely with the Health and Safety Executive, the safety regulator, which provides advice on the safety implications of events, including external hazards such as plane crashes, at nuclear installations. Security and safety precautions at nuclear sites are kept under regular review and the Government are reviewing all precautions in the light of the terrorist attacks in the United States on 11 September. It is not Government policy to disclose details of security measures taken at civil nuclear sites. Officials have discussed security issues with their French counter-parts."

Paul Flynn also enquired whether the Secretary of State for Trade and Industry had asked Office for Civil Nuclear Security to make a special assessment of the security provisions for the Sellafield MOX Plant and the transport of MOX fuel to overseas customers following the terrorist events of 11 September. And his Labour colleague, **Llew Smith**, asked the Secretary of State if she would list the personnel who comprise her Department's Office for Civil Nuclear Security, along with the qualifications they have for their roles

Replying, Brian Wilson said “The DTI's Office for Civil Nuclear Security comprise 34 staff headed by Michael Buckland-Smith, Director of Civil Nuclear Security. Staff have a range of relevant experience including work in the security and intelligence agencies, the armed services and the police. Training and competences required for OCNS--as for all parts of DTI--are kept under continuing review in the light of changing needs.”

Sellafield, 12 November 2001,col.541

Labour's David Chaytor asked the Secretary of State for Trade and Industry what plans she has to extend the no-fly zone at Sellafield, to be told by **Patricia Hewitt** that “There are no plans to extend the flying restrictions applying to Sellafield at the present time. Flying restrictions over Sellafield prohibit aircraft from flying over the nuclear installation below a height of 2,200 feet above mean sea level in a two nautical mile radius. The regulations currently applying are the Air Navigation (Restriction of Flying) (Nuclear Installations) Regulations 2001 which came into force on 11 May 2001. The regulations do not prohibit flights for the purpose of landing at or taking off from the helicopter landing area at the installation. Such flights are made with the permission of the person in charge of the installation and in accordance with any conditions to which that permission is subject.”

Mr Chaytor followed up asking whether the B215 building [ie the High Activity Radioactive Waste Tanks] at the Sellafield site has been designed to resist a plane crash. **Ms Hewitt** asserted “All nuclear licensees are required by the Health and Safety Executive (HSE), the safety regulator, to ensure that they maintain valid safety cases for operations on each of their sites. Safety cases need to take due account of external hazards such as plane crashes at nuclear installations. HSE is satisfied that the safety case applying to the Sellafield site, including building 215, took appropriate account of the risks of an accidental air crash.

The UK's civil nuclear sites apply stringent security measures regulated by the Office for Civil Nuclear Security (OCNS), the security regulator. The security regulator works closely with the Health and Safety Executive, the safety regulator, which provides advice on the safety implications of events, including external hazards such as plane crashes, at nuclear installations. Security and safety precautions at nuclear sites are kept under regular review. Both regulators are reviewing all relevant precautions in the light of the recent terrorist attacks in the USA. It is not Government policy to disclose details of security measures taken at civil nuclear sites.”

Nuclear Installations (Security), 16 November 2001, Column: 921W

Llew Smith asked the Secretary of State for Trade and Industry what consultations her Department has had with independent experts in respect of the security of nuclear facilities since 11 September. **Brian Wilson** replied “The Office for Civil Nuclear Security (OCNS) within my Department is the Government's security regulator for the civil nuclear industry. OCNS has operational and regulatory autonomy in setting security standards and ensuring industry compliance. OCNS and DTI officials liaise with their counterparts in other agencies at home and abroad and with industry experts in the civil nuclear industry.

Then on 19-20 November 2001 came the hearings challenging the new Sellafield MOX plutonium fuels plant, instigated by the Irish Government at the International Tribunal for the Law of the Sea, in Hamburg. Here are some extracts, where the UK representatives attack the STOA report, which had been entered several times in evidence by the Irish government:

UK Attorney General Lord Goldsmith said

“Ireland says that discharges from Sellafield increased significantly in the 1970s. It is difficult not to ask – so what? This Provisional Measures Request is being made in 2001 and discharges from Sellafield have reduced very significantly indeed since the 1970s. discharges of the principal radionuclides are now less than 1% of their peak values in the 1970s; a 99% reduction since the 1970s. That is a reference to a statement by the European Commission on 23 October 1997.

Then it says, and I quote from the Statement of Case, “many independent scientific assessments” have concluded that as a result of radioactive pollution from Sellafield the Irish Sea is amongst the most radioactively polluted seas in the world. In fact, Ireland only referred to one assessment. That is the report – the WISE Report – commissioned by the European Parliament’s Panel for Scientific and Technical Office (STOA). As I said yesterday, that report commissioned by the European Parliament has now been elevated into a report of the European Parliament. That was the way it was described yesterday but it is not a European Parliament report. It is a report, apparently leaked to the press, that has been widely criticised as unscientific. It has led, according to those reports, the Chairman of the very Committee, STOA, to say that the behaviour of WISE has not been “in line with the long standing tradition of STOA which always endeavoured to associate its work with the highest scientific and ethical standards”. . . . Given the acute sensitivity of these matters, the security measures, it is not the policy of the United Kingdom Government to engage in discussion on such issues without cause. Ireland ought, at least, to be identifying issues with which it has particular concern.

The United Kingdom of course takes its responsibilities in this field extremely seriously. Major centres of population in the United Kingdom are a good deal closer to Sellafield than those in Ireland. It is a little provocative, if I may say so, for Ireland to suggest that because the United Kingdom has not chosen to initiate confidential discussions with Ireland on this matter, the United Kingdom is somehow lax about it.

Let me simply say this. The existence of a potential terrorist threat, both in terms of seizure of nuclear materials with a view to later use and direct attack of nuclear materials with a view to causing destruction of assets and radioactive release have been known to the United Kingdom, and have been the object of security measures for many years.”

The protection of the Sellafield site, including the MOX plant, is kept under regular review by the Office for Civil Nuclear Security and the Health and Safety Executive. The measures of protection have been reviewed in the light of 11 September. The advice of the Office for Civil Nuclear Security is that the manufacture of MOX fuel presents negligible security risks. This advice has been reviewed since 11 September. The advice of the Office for Civil Nuclear Security is also that the transport of MOX fuel presents negligible security risks. This advice has been reviewed since 11 September.

The precautions to prevent theft or sabotage of MOX fuel during transport comply with all relevant international obligations and recommendations and are amply robust to cope with any credible threat.

Richard Plender QC, continued

..... Both Mr Fitzsimons and Mr Sands referred to what they called a report from the European Parliament. Mr Fitzsimons characterised the body that produced the report as “high reputable”. It is in fact a report by one Mycle Schneider, working for a body called the World Information Service on Energy, known by its acronym as WISE. It is not specifically concerned with the MOX plant. It is concerned with nuclear reprocessing plants at Sellafield and La Hague generally. The report is not from the European Parliament. Indeed, the Chairman of the Committee of the European Parliament that commissioned it had some harsh criticisms to make of it. It was not published by the Parliament. It was leaked.

Mr Fitzsimons criticised us yesterday for relying on a report in the Irish press derived from a press release from the Commission. Very well, I take the Court directly to the Commission’s press release, which has this morning been added to the annexes submitted by the United Kingdom to the registry.Members of the European Parliament expressed concerns about the objectivity of that report by an independent contractor and the responsible parliamentary committee expressed regret that the organisation that produced it should see fit to break its contract by leaking to the press the document on which Ireland now relies. Indeed, we understand that there is some consideration given to the issuance of proceedings by the European Parliament against this body and there are press reports of that matter.

We hear of the group called WISE elsewhere in Ireland’s submissions. At page 94 of the annexes to Ireland’s Statement of Case, which I do not take the Tribunal to at the moment, there is a rather sensational newspaper article about Royal Air Force jets responding to a hoax call at Sellafield. In your own time members of the Tribunal will see in that report that a spokesman from WISE, professing no military

experience or knowledge of military matters, is ready with a comment to the press expressing surprise at the United Kingdom has not stationed missiles there.

Mr Fitzsimons expressed some indignation that we should question the WISE report. We prefer to rely upon the reports of bodies which we characterise as reputable, including particularly the Irish Government's own RPII and the Commission of the European Communities. These have indeed looked at the matter carefully and objectively and the Commission has concluded that radiation from the MOX plant will be insignificant from the point of view of public health and the Irish Institute has concluded that radiation from Sellafield is not such as to present dangers to health in Ireland."

Lord Goldsmith wrapped up "Thirdly, I remind you of the detailed consideration by the Secretaries of State of all the issues, including security issues after 11 September. That is at Annex 4. On the screen is paragraph 28 of the decision letter. I shall read the relevant part:

"Security risks to nuclear and other installations are kept under review. The Office for Civil Nuclear Security ... which regulates security within the civil nuclear industry, has taken account of the terrorist attacks which took place in America on 11 September and continues to be satisfied that the security arrangements to be applied by BNFL will provide effective security once the SMP starts to operate."

Responding for Ireland, Mr Eoghan Fitzsimons SC said

"Moving on the STOA Report prepared for the European Parliament, the data contained in the summary of the report remains intact as evidence before this Tribunal. As I have already stated, the United Kingdom has chosen not to challenge this scientific data contained in the report. The data fully supports Ireland's contention that the commencement of the MOX plant with the resultant increased activity at THORP will give rise to a cumulative, irreversible and long-term pollution of the Irish Sea.

The United Kingdom has sought to dismiss the report on the basis of a single article in a Sunday newspaper. They have now produced a press release on the basis of which that article was written and I call your attention to it. As you will see, it is issued by Professor Trakatellis, Chairman of the STOA Panel. He does not, as was suggested, criticise or seek to discredit the content of the report in any way. The contractual dispute that the party who prepared the report has no bearing on its content. It was stated that Members of the European Parliament expressed concern and if you read the press release you will see that some members of the European Parliament expressed concerns regarding the report's objectivity. But, of course, the report is strongly critical of France and the United Kingdom; the French and British Governments. I am not sure of the number but there are perhaps up to 100 representatives of France and England in the European Parliament.

We submit that it is not unreasonable to assume that the few Members of the European Parliament who apparently were critical of the report were either English or French or both. We ask you to read the press release. When you read the press release you will see in it a statement as follows, and the first of these is highlighted, "The new study should be seen as an additional contribution to the effort of STOA to enrich the political debate with the most objective and comprehensive scientific and technical information possible on this subject.

More importantly, the second sentence which is highlighted, the Panel places great value in an open event of this kind as the best way of treating a subject on which significantly divergent opinions may exist. Ireland and the United Kingdom have significantly divergent opinions on the issue that you have to decide. These will be decided upon at the Annex VII tribunal hearing. They do not arise for determination now. What is important is that there is evidence, some of which is in the STOA Report which supports the Irish case in relation to harm and damage and particularly in relation to the irreversible, cumulative and long-term effects of the discharges. We say that it is inconceivable that the United Kingdom has not considered whether or not it should attack the data in this report.

Their defence, as will be apparent from their Written Response and their submissions made here, has been meticulously prepared. **They have had clearly enormous assistance from experts and yet no attempt is made to attack any of the data in the STOA Report** and particularly the figures I referred you to. Not one figure has been contradicted and we submit that in those circumstances that evidence remains intact. We submit that the only inference to be drawn from the United Kingdom approach is that they accept that the data is accurate and are not in a position to dispute it. We, therefore, ask you to treat that evidence accordingly.

The United Kingdom has, of course, produced data in their written submission and again here. It is there but it is all land-based data. They have produced no data regarding the marine environment and, of course, the STOA Report addresses that specifically. There is no evidence from the United Kingdom containing any data about the levels of pollution in the Irish Sea. They have avoided that topic completely. You are entitled to draw inferences from that.”

At the end of November, (28th) the British minister, Patricia Hewitt, announced to Parliament the plans to form a NUCLEAR LIABILITIES MANAGEMENT AUTHORITY. During the debate, Labour’s Paul Flynn asked “Is not the statement an attempt unfairly to rig the energy market in favour of nuclear power to the detriment of other power producers? Although the military legacy is certainly a national legacy, the civil nuclear industry has always been an economic basket case and has never been viable without public handouts. If we are to discharge the nuclear industry from the legitimate legacy of the past, will we charge it for the new legacy that has arisen since 11 September?”

He added “**We know that France has installed surface-to-air missiles in its power stations and that jets have been scrambled near Sellafield after an emergency there. An agency in France has claimed that if an 11 September attack took place on a nuclear-powered processing plant such as that at La Hague or Sellafield, it would produce 60 times the amount of caesium that was released at Chernobyl. Who will pay for the additional costs of defending those sites? What would we have to pay to insure against 60 Chernobyls?**”

Ms Hewitt responded “ My hon. Friend also raises the important issue of the security implications that arise from the atrocity on 11 September. We and the director of civil nuclear security have reviewed security procedures in the light of that attack, although for obvious reasons I do not propose to go into the detail of those arrangements. Each country makes its own judgment of the measures that are necessary to ensure the security of its infrastructure, including nuclear power stations. The RAF certainly maintains a high state of readiness in support of the air defence of the United Kingdom, and that readiness was reviewed in the light of the attack on the United States.”

Nuclear Security, 29 November 2001

Next day, Llew Smith asked the Secretary of State for Trade and Industry what is the annual budget for the Office for Civil Nuclear Security; and if she has plans to increase the budget following the events of 11 September. Brian Wilson said “**The budget for the Office for Civil Nuclear Security (OCNS) is approximately £1.5 million in the current year. The measures which need to be taken following the events of 11 September, including nuclear security, are currently under review.**”

29 November 2001, Column: 1045W

Paul Flynn then asked the Secretary of State for Trade and Industry what assessment she has made of the impact on the competitiveness of the nuclear power industry of additional security requirements since 11 September, to be told by Mr. Wilson that “ No such assessment has been undertaken.”

A frustrated Mr Flynn submitted an Early Day Motion (No.378) – a way of flagging up Parliamentary concern - on SELLAFIELD, stating:

“That this House agrees with the Irish Prime Minister's comment that Sellafield is a defunct military-industrial complex that is being kept on life-support by the huge write-off of British taxpayers' funds, and is a triumph of vested interest over economic reality; and believes that nuclear reprocessing is an environmentally dangerous, economically unsustainable and industrially unnecessary activity which should be halted, that the manufacture of plutonium-based mixed oxide fuel at Sellafield should not be started, that Sellafield should be converted into a centre of excellence for the management of nuclear waste and that as a matter of urgency the air and off-shore exclusion zones around Sellafield should be extended to 50 miles, and anti-aircraft missile batteries should be installed around Sellafield to provide protection from terrorist attack.”

Which was backed by backed by 25 MPs as of 30 November.
Ahern presses Blair over Sellafield nuclear plant

On the same day Taoiseach Bbertie Ahern said today he had raised the Irish Government's objection to the proposed MOX plant at Sellafield with Mr Tony Blair at a meeting in Dublin Castle. Although he described the meeting of the British-Irish Council in Dublin Castle as "very successful", Mr Ahern said he had received no assurance from the British prime minister the building of the controversial plant would be stopped.

"I entirely understand the concerns of people here in Ireland about Sellafield," Mr Blair told a press conference after the meeting. "If there is a risk it affects people in my country as much as yours". Mr Blair said there were rigorous international standards on such plants and they would be followed to the letter. He said there would continue to be dialogue on the issue but would not be drawn on whether or not the plan would be scrapped.

The Government has been outraged by plans for the mixed oxide plant at Sellafield and has signalled its intention to take legal action over the plant. Last week Fianna Fáil placed a full-page advertisement in London's Times newspaper voicing its opposition to the project.

The UN International Tribunal for the Law of the Sea announced last night it will rule on December 3rd on whether Ireland should be granted an injunction to prevent the opening of the unit.

Nuclear Reprocessing, 6 December 2001, cols 467-8

Following the highly critical dismissal of the STOA report by the British advocates at the ITLOS hearings, **Llew Smith** asked the Secretary of State for Foreign and Commonwealth Affairs what was the basis of the criticisms of the competence of the authors of the report prepared for the European Parliament's STOA Programme on possible toxic effects from nuclear reprocessing plants at Sellafield, that the Attorney General put before the International Tribunal for the Law of the Sea on 19-20 November. [19880]

Foreign secretary Jack Straw responded saying “ **The Government, in their submissions before the International Tribunal for the Law of the Sea in the MOX plant case, drew attention to criticisms that had been made of the Wise report regarding its possible lack of objectivity. As these statements were made in the context of legal proceedings, I would not wish to paraphrase them.**”

He then referred “to the full verbatim transcripts of the statements made by the Government to the Tribunal during the hearings on 19 and 20 November. These are available on the website of the Tribunal at <http://www.itlos.org>.

The relevant sections from the transcripts are as follows:

Transcript of public sitting held on Monday, 19 November 2001, at 3.00 p.m.

Page 23, lines 34-41

<http://www.itlos.org/case-documents/2001/document-en-194.pdf>

Transcript of public sitting held on Tuesday, 20 November 2001, at 9.30 a.m.

Page 5, lines 43-50, page 6, lines 1-17, page 29, lines 4-41

<http://www.itlos.org/case-documents/2001/document-en-195.pdf>

Transcript of public sitting held on Tuesday, 20 November 2001, at 3.15 p.m.

Page 20, lines 22-27

<http://www.itlos.org/case-documents/2001/document-en-196.pdf>

Alternatively, these transcripts may be accessed by starting from the home page of the Tribunal's website (<http://www.itlos.org>) and making the following selections:

English

Proceedings and Judgments

Docket

Case No.10 (The MOX Plant Case)

Oral proceedings
ITLOS/PV.01/07,
ITLOS/PV.01/08, and
ITLOS/PV.01/09.

The above page and line references are to the uncorrected versions of the transcripts which are currently displayed on the Tribunal's website. When the Tribunal replaces these with the corrected versions, there might be some slight changes in the line numberings of the relevant text. If these are material I will write to my hon. Friend to inform him."

Nuclear Security, 10 December 2001, cols. 665-6

Llew Smith next asked the Secretary of State for Trade and Industry, following an earlier reply to David Chaytor, on 12 November 2001, *Official Report*, column 541W, on Sellafield, what assessment she has made of how long it would take a commercial passenger plane flying at 2,200 ft above sea level two nautical miles from Sellafield to crash into Sellafield. [15572]

Brian Wilson retorted bluntly "No such assessment has been made."

Llew Smith also asked the Secretary of State for Trade and Industry what consultations have been undertaken since 11 September with (a) non-governmental organisations and (b) independent academic experts on the security of nuclear installations and nuclear materials in transport by the Office of Civil Nuclear Security; and what were the (i) dates and (ii) matters covered in the meetings? To be told by **Mr Wilson** "There have been no consultations since 11 September 2001 between the Office for Civil Nuclear Security and non-governmental organisations or independent academic experts on the security of nuclear installations and nuclear materials in transport."

Nuclear Reprocessing (Toxic Effects), 10 December 2001

Persisting, **Llew Smith** next asked the Secretary of State for Trade and Industry what assessment she has made of the report published on 23 November by the European Parliament's Scientific and Technological Options Assessment Programme on possible toxic effects from the nuclear reprocessing plants at Sellafield and Cap de la Hague, France.

Brian Wilson responded "None. The subject matter of this report--which was prepared by an organisation called WISE-Paris--appears to relate to assessment of the possible environmental impacts of reprocessing. In the UK such matters fall to my right hon. Friend the Secretary of State for Environment, Food, and Rural Affairs to whom I understand the hon. Gentleman has addressed a similar question. I am aware, however, that the objectivity and scientific validity of the study produced by WISE-Paris have been called into question by Members of the European Parliament and that, in view of this, the European Parliament body that commissioned the report in response to a request from a separate committee formally sought from three experts an independent evaluation of the report.

The Chairman of the Scientific and Technological Options Assessment Panel (STOA) makes clear in a letter written as a cover to the study on its publication that publication of the document "does not imply adoption of its contents and these do not necessarily reflect the views of members of the STOA Panel or the European Parliament". The letter goes on to state "the STOA Panel expresses regret that WISE-Paris saw fit to break the confidentiality clause in its contract by making public parts of the study prior to its publication. This behaviour of WISE-Paris is not in line with the long-standing tradition of STOA, which has always endeavoured to associate its work with the highest scientific and ethical standards".

As the letter explains, at its meeting on 23 October the STOA Panel took note of the WISE-Paris study and decided to publish it "as a first contribution to the scientific debate". STOA also decided to make public the assessments of the WISE-Paris work that STOA obtained from the independent experts.

Ireland's Radiation Protection Institute was more supportive. In an assessment by P. A. Colgan, RPII's Principal Scientific Officer, dated 12th December 2001, it stated.

Re: Report of the European Parliament STOA Committee on Possible Toxic Effects from Sellafield and La Hague Processing Plants

[EXTRACTS]

In reviewing the report I have given particular attention to those issues related to Sellafield and the subsequent impact on the Irish Sea and on Ireland. Consequently I am making no comment on topics specifically related to operations at La Hague

My comments deal with aspects of the report where I would disagree with the authors but also highlight issues of direct relevance to Ireland.

The report brings together a large body of information and presents it in a manner that is well structured, easy to read and well referenced throughout. The use of Annexes for dealing with specific topics or presenting large amounts of technical data contributes significantly to the readability of the report.

the report gives a very good overview of the interplay between the various issues and is a valuable reference for those working in this field.

Specific Comments

On Collective Dose

The issue of collective dose, and the manner in which it should be used, is raised in a number of places in the report. The authors quite rightly indicate that there is considerable international debate on the use of collective dose[it] also argues against comparing collective doses from naturally occurring radioactivity with those from anthropogenic (man-made) sources as it may imply to the lay reader that the latter are therefore automatically justifiable. None of this can be argued with from anthropogenic sources.

.....the methodology used in calculating collective dose leads to no mention of either caesium-137 or plutonium. Caesium-137 is presently the main contributor to collective dose in Ireland as a result of discharges from Sellafield. On the assumption that caesium-137 discharges continue to fall, remobilisation of plutonium from the seabed and concentration of technetium-99 in marine biota will become more important contributors, on a percentage basis, to doses in Ireland although they will be much less important if a global perspective is taken. Neither of these points comes across clearly in the report.

With some notable exceptions, the authors have resisted the temptation to translate collective doses into numbers of deaths.

Risks from HAST Tanks

On page 5 of the Executive Summary and General Conclusions the authors state that '...a serious accident might lead to large releases of radioactivity and in the long term globally to over one million fatal cancer cases'. This is based on the assumption that 50% of the caesium-137 inventory of all 21 tanks would be released to the environment.

The associated text on which this statement appears to be based (section 5.5, p. 37-39) does not provide any details of the accident scenario considered or the conditions under which the authors believe that such a release might be possible. ...In the case of Sellafield, the radioactive content of some of the tanks is too low for boiling to occur should cooling fail. The argument therefore for choosing a release of 50% from all 21 storage tanks at Sellafield should be made clear so that the reasoning and the realism of the scenario used can be commented upon.

These issues apart, the events of 11th September have given rise to new and additional concerns about terrorist attacks and the safety of all nuclear facilities. Many regulators have either themselves undertaken studies to evaluate the potential risks from such attacks or have asked the utilities they licence to do so. It is important that the outcome of these evaluations makes its way into the public domain and that the nuclear industry addresses any security and safety measures shown to be inadequate.

Euratom Treaty

The authors refer to Articles 34, 35 and 37 of the Euratom Treaty and suggest that the Commission is failing to properly discharge its responsibilities and commitments in respect of both La Hague and Sellafield.

My main comment relates to Article 37 and that the focus of this Article is on the effects on health and not on the environment. The Article 37 Group of Experts is asked from time to time to express its opinion on whether or not the operations at a proposed facility would give rise to radioactive contamination, significant from the point-of-view of health, of the water, soil or airspace of another Member State. Unfortunately the underlined words seem to have been omitted by the

Sellafield terror attack warning

The article started “Ministers have been warned that a determined terrorist attempt to fly an aeroplane into the Sellafield nuclear reprocessing plant could not be prevented because of its proximity to transatlantic flight paths. The warning, from MI5, came after Tornado fighters were scrambled over the plant in response to a reported hijack attempt last month.

'The position at Sellafield is unthinkable,' an intelligence source confirmed. 'If it were hit successfully, everything within 150 miles could go. The position has now been made clear to Ministers.'

The message was getting through it seemed.

But wait. The article also reported “A spokesman for BNFL, which owns Sellafield, said last night: 'Our buildings are robust and there are the strictest security arrangements. They are built to hold radioactive material.' But a company source conceded that the possibility of an aircraft being deliberately flown into the structures had not been considered when they were constructed.

[The Observer later reported, on 20 January, that the UK's plutonium is 'kept in a shed'.]

And an aircraft expert, David Learmount, safety editor of Flight International, said “You may have slightly more than two minutes, but it wouldn't be more than five. Thankfully, however, if you dive a civil airliner very quickly, it might lose control and miss the building.

'If however it appeared that a plane was intent upon hitting Sellafield, you would have to attempt to blow it out of the sky altogether with the passengers.’”

On 8 January the Welsh Assembly held a wide ranging debate on the health effects of Sellafield. No mention of the STOA report was made. I subsequently e-mailed the executive summary to all Assembly Members who participated.

In early January, STOA co-author, Dr Gordon Thompson, who has done much work for the Irish case against Sellafield, submitted a devastating memo titled CIVILIAN NUCLEAR FACILITIES AS WEAPONS FOR AN ENEMY to the UK House of Commons Defence Select committee enquiry into *The Threat from Terrorism*.

It said :

[EXTRACT]

This submission addresses the potential role of civilian nuclear facilities as radiological weapons for an enemy of the UK. That enemy might be a foreign state, a foreign or domestic group of terrorists, or a malicious or insane individual.

A notable example of a potential radiological weapon for an enemy of the UK is the B215 facility at Sellafield. This facility houses 21 steel tanks and associated equipment in above-ground concrete cells. The tanks contain high-level radioactive waste (HLW) in the form of a self-heating, acidic liquid that requires continuous cooling and agitation. This liquid HLW is a product of nuclear fuel reprocessing at Sellafield. At present, the tanks contain about 1,550 cubic metres of liquid HLW. The radioactive isotopes in this liquid include about 8 million TBq (2,400 kilograms) of caesium-137. For comparison, the 1986 Chernobyl reactor accident released to the atmosphere about 90,000 TBq (27 kilograms) of caesium-137, representing 40 percent of the inventory of caesium-137 in the reactor core. Most of the offsite radiation exposure from the Chernobyl accident can be attributed to caesium-137, which has a half-life of 30 years.

3. Using a Nuclear Facility as a Weapon

In order to use a nuclear facility as a radiological weapon, an enemy must obtain a release of radioactive material from the facility. A variety of methods are available for this purpose. Each facility has its particular vulnerabilities, which are apparent to knowledgeable persons. If the enemy has an agent in place inside the facility, the obtaining of a release might not require violent action. In the absence of an inside agent, the obtaining of a release would generally require violent action.

One potential method for obtaining a release through violent action would be to arrange for the impact of a fuel-laden commercial aircraft on the facility. For example, the aircraft might be a Boeing 747-400, which has a maximum takeoff weight of 360-400 tonnes and a fuel capacity of 200-220 thousand litres. Complete combustion of 100,000 litres of jet fuel -- about half the fuel capacity of a Boeing 747-400 -- will yield energy equivalent to that from exploding 900 tonnes of TNT, although with lower efficiency in converting combustion energy into blast. Thus, the impact of a fuel-laden Boeing 747-400 on a nuclear facility would unleash large forces, potentially causing a significant release of radioactive material.

4. Effects of a Radioactive Release

In typical weather conditions, an atmospheric release of 4 million TBq of caesium-137 would, if the radioactive plume travelled over land rather than the ocean, render uninhabitable about 200,000 square kilometres of land. The use of a little imagination shows that this event would be a disaster of historic proportions, with health, environmental, economic, social and political dimensions.

7. Recommendations to the Commons Defence Committee

Dr Thompson concluded "IRSS recommends that the Defence Committee assign a high priority to informing itself about the threat posed by civilian nuclear facilities. The Committee should not rely upon the government or the nuclear industry to provide the relevant information. Experience shows that these entities are reluctant to address the threat, and cannot be trusted to provide a thorough analysis of the threat and the options for reducing the threat. The Committee should take direct responsibility for obtaining this information.

The Committee should call upon the Parliamentary Office of Science and Technology (POST) to conduct a thorough, independent analysis of the threat and the threat-reducing options, using the two-step approach outlined in Section 6, above. To perform the analysis, POST should assemble an expert group with members from inside and outside the UK, and should sponsor specialist studies as necessary. Employees of the government and the nuclear industry could serve on the expert group, but should be personally accountable for their input.

POST should be tasked with providing the Committee with an interim report in 6 months and a final report in 12 months. These reports should be presented to the Committee at hearings where government, industry, academia and citizen groups are also able to make presentations. After these hearings, the Committee would be in a position to formulate its own recommendations for future action.

The Guardian reported on Dr Thompson's paper in an article on 10 January headed:

Terror attack on Sellafield 'would wipe out the north'

The article opened "A terrorist attack on Sellafield could render the north of England uninhabitable and release 100 times the radioactivity produced by the nuclear accident at Chernobyl in 1986, the House of Commons defence committee was told yesterday.

The most vulnerable part of the facilities at Sellafield, dating back to the 1950s, contain giant tanks of high level radioactive waste which has to be constantly cooled and stirred to prevent a chain reaction.

Gordon Thompson, executive director of the Institute for Resource and Security Studies in Cambridge, Massachusetts, said he believed that documents from both the nuclear industry and the government showed neither had ever attempted a thorough analysis of the threat or the options for reducing it.

The Commons defence committee in its report said that "attention has particularly focused on perceived vulnerability of nuclear installations". However, the Ministry of Defence said yesterday that a "quick response" procedure was in place to cover the whole of the country in the event of a hijack attack.

about the minister's stance on Sellafield. Mr Nesbitt said: "the aspect of Sellafield both causes concern to the people of Northern Ireland, especially in County Down, and also involves scientific evidence regarding the arguments. For these reasons we must approach the Sellafield issue in both a considered and measured manner.

"I do not want to build up undue expectations regarding Sellafield. However, I do want to ensure that the UK government which has responsibility for Sellafield takes appropriate measures based on reasoned arguments and sound information. I believe that we have made some progress towards these ends at the British Irish Council meeting on Monday this week. This forum offers us all the opportunity – just the opportunity at this stage – to secure an end of the Sellafield problem. Indeed, the FOE recognise that it would take many years to close sellafield.

He stressed "I readily admit that closure is an option I would support. I have, however, a responsibility to be open and honest with the electorate while using my best endeavours to improve the environment of Northern Ireland which is one aim of my department."

The N.I Assembly itself held an energy debate on 5 March, when Sellafield got several mentions. Here are some excerpts:

NORTHERN IRELAND ASSEMBLY

Tuesday 5 March 2002

<http://www.ni-assembly.gov.uk/record/020305.htm#7>

CONTENTS

Committee for Enterprise, Trade and Investment: Report on the Energy Inquiry

The Chairperson of the Committee for Enterprise, Trade and Investment (Mr P Doherty):

I beg to move

When the Committee began its inquiry, it did not anticipate the sheer magnitude of the task. It was a lengthy and wide-ranging inquiry that took almost one year to complete. The Committee received 32 written submissions from organisations and individuals, and 29 oral evidence sessions were held with groups and individuals. Those sessions involved a wide range of bodies, including the Department of Enterprise, Trade and Investment, the energy regulator, energy producers and suppliers, business associations, district councils, academics and voluntary groups. They came from as far away as the USA and Venezuela. The Committee was overwhelmed by the volume and quality of the evidence received. ...

I shall now address some of the key issues that were identified by the Committee during the inquiry.

The Committee made a total of 45 recommendations under five headings. I shall concentrate on the main recommendations.

I shall mention two recommendations.

Although there are no nuclear power installations on the island of Ireland, we are much affected by the environmental impact of nuclear plants on the west coast of Britain. The Committee was unanimous in its recommendation that Ireland remain a nuclear-free zone and in the call for the closure of those plants in GB that have a great impact on people in Ireland. It seems inappropriate that such vast sums of money are spent by the UK Government to support the nuclear industry when a cleaner, greener form of energy is available. The sum spent on the development of renewable energy is paltry when compared with that spent on nuclear energy. The Committee, therefore, also recommends that Government subsidies to the nuclear industry should be redirected to renewable energy.

I have outlined the main points arising from the inquiry, and I commend the report to the House.

The Deputy Chairperson of the Committee for Enterprise, Trade and Investment (Mr Neeson):

I could not resist the opportunity to be in the House today to contribute to the debate on the presentation of the report

Dr Birnie:

...In general, the report's 45 recommendations are supported by good evidence, and I commend the Committee for that. The apparent exception, which the Chairperson of the Committee mentioned, is the first recommendation, which concerns nuclear power. If I have interpreted it correctly, the recommendation in effect calls for, among other things, the eventual closure of the nuclear industry in Great Britain. I am no fan of nuclear power, and it is likely that, since the 1950s, the nuclear industry in Great Britain has not been economically viable. If operators had been forced to pay the full costs of the production of the electricity, particularly the decommissioning costs of power stations, they would not have balanced the books.

However, the issue of when the UK should withdraw from nuclear power generation is a complex one. The report has not addressed that properly despite this prominent recommendation. The report does not consider the impact of rapidly squeezing nuclear electricity production in meeting the Kyoto target. The Kyoto target relates to carbon dioxide production from fossil fuels. Furthermore, the report does not consider the fact that the production of fossil fuels is not an entirely safe option. Regrettably, people die in the production of coal, gas and oil. It is often argued that the nuclear industry is not safe, but those industries are not perfectly safe either.

Mr Wells:

I welcome the Committee's decision fully and enthusiastically to rule out forever, if possible, any prospect of nuclear power generation in Northern Ireland. As a representative for South Down, I am well aware of the enormous concerns that that

community has about the impact of emissions from Sellafield. Therefore, we felt that it was important to put down a marker to say that that type of generation is unacceptable. It poses too many dangers and threats to the environment.

Mr Doherty The Chairperson of the Committee for Enterprise, Trade and Investment:

The fact that the Committee comes out firmly against nuclear energy production and reprocessing, and that it is highly critical of the UK Government's arrogant and irresponsible approach to those issues, is particularly satisfying.

Sir Reg Empey:

I am not sure how much time you will permit me to respond, Mr Deputy Speaker. There is a great deal of ground to cover. I shall try to address as many of the issues that Members raised as I can, after my initial remarks.

The report makes a total of 45 recommendations, not all of which are directed at the Department of Enterprise, Trade and Investment. Some recommendations are directed at other Departments and at parties with a direct interest or involvement in the energy market. I shall respond formally to the report's recommendations in due course, when I have consulted with Executive Colleagues. In the meantime, I wish to make some initial observations and to respond to some of the questions that Members raised.

In the next few days, I plan to publish an initial consultation paper on a revised energy market strategy. The paper will canvass views on the shape, structure and content of a new energy strategy for the Northern Ireland of the twenty-first century.

Some major problems remain, which the Committee has considered. It will be invaluable to have their helpful analysis and recommendations on solutions set out in the inquiry report.

Dr Birnie raised the issue of the Kyoto protocol and the nuclear side of things. I am aware of the concerns that people have about nuclear issues. One view expressed was that no electricity generated by nuclear power should come into Northern Ireland. Just as it is impossible to tell the difference between "orange" electricity and "green" electricity, so it is impossible to tell the difference between nuclear- and coal-based electricity. Unless some testing mechanism is developed, we shall not be able to distinguish between them. What comes through the Moyle interconnector ends up in a pool in GB, and we have no control over where the electricity is generated.

Nuclear covers about 20% of generation in the UK, but if it is got rid of, it must be replaced with something else. If that is not renewables, it will be coal, oil or gas. I understand the difficulties, but there is no easy answer. The end result will be that more fossil fuels will be burned, instead of dealing with the nuclear issue.

Within days, the Guardian web site (7 March) carried a story headed

Row erupts over Sellafield security

It opened "A Conservative spokesman was accused of "irresponsible" behaviour in the Commons today after he revealed just how easy it would be for terrorists to destroy Sellafield nuclear power plant and render most of Britain uninhabitable.

Tory environment spokesman Jonathan Sayeed called for stricter security to prevent a possible air strike on the Sellafield nuclear reprocessing plant, after spelling out the consequences of a hijacked airplane crashing into the nuclear reactor.

But environment minister Michael Meacher turned on Mr Sayeed during question time, claiming it was extraordinary for a frontbench MP to draw attention to the "exposure of a major nuclear plant" in public. The row was sparked when Mr Sayeed said the amount of highly radioactive material stored at Cumbrian plant "in steel tanks nearly 50 years old" was around 100 times the quantity released in the Chernobyl disaster.

"Will you confirm that a passenger jet would take about 30 seconds to traverse the air exclusion zone around Sellafield and hit those tanks."

Here is the exchange in full:

Environment Question Time, 7 March 2002

Official Report, [Hansard] House of Commons,

Waste Management

4. Mr. David Chaytor (Bury, North): "What progress she has made in her plans for the management of radioactive waste. [37996]

The Minister for the Environment (Mr. Michael Meacher): The Government and the devolved Administrations published the consultation paper "Managing radioactive waste safely" on 12 September. We propose a programme of national debate and research, leading to scientifically sound decisions on the long-term management of radioactive waste that will inspire public confidence across the UK. The consultation period ends on 12 March.

Mr. Chaytor: I thank my right hon. Friend for his reply. Does he think that it would be appropriate for a new nuclear power station to be constructed before a solution had been identified to the problem of our existing stockpiles of radioactive waste? Will he confirm that Government policy would be to charge the full cost of waste disposal to any new operator? Does he think that the chief scientific adviser would have issued his statement this morning if a hijacked aircraft had flown into Sellafield rather than the World Trade Centre?

Mr. Meacher: On my hon. Friend's first point, it has already been stated that the PIU energy report does not foreclose on the nuclear option. It does not propose new nuclear build, but, equally, it does not foreclose on the nuclear option in the interests of the nation's security of supply. There is no presumption on the part of the Government either for or against nuclear power. Significantly, however, the White Paper states that even if no new nuclear plant were built, and even if reprocessing were to come to an end with the phasing out of the Magnox reactors, there would still be 500,000 tonnes of radioactive waste in this country that would have to be managed over the next 100 years.

My hon. Friend asked whether any consideration of nuclear build should involve the cost of disposal. The answer to that is, frankly, yes.

The exposure of nuclear plants is obviously a major security issue given the events of 11 September, and it is kept firmly under review by the

Office for Civil Nuclear Security. Security measures have been tightened in the light of that event.

Mr. Jonathan Sayeed (Mid-Bedfordshire): The Minister is right to talk about a major issue at Sellafield, because the amount of highly radioactive caesium 137s stored there in steel tanks that are almost 50 years old is approximately 100 times the quantity released at Chernobyl. Will he confirm that a passenger jet would take about 30 seconds to traverse the air exclusion zone around Sellafield and hit the tanks? Does he agree that, dependent on weather conditions, that would render all land within 400 miles of Sellafield uninhabitable? Will he

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recognise the urgent need for the imposition of new security measures, perhaps involving precautions as basic as barrage balloons, to deal with that threat until safer storage of fissile material is achieved?

Mr. Meacher: Even if what the hon. Gentleman said were correct—I certainly do not confirm that it is correct—it is extraordinary and pretty irresponsible for an Opposition Front-Bench spokesman to advertise in Parliament and draw attention to the exposure of a major nuclear plant in that way. These matters have of course been the subject of intense discussion, and there has been intense examination of all the options. It is not my place to say publicly in Parliament exactly what precautionary measures we have put in place. I would expect such measures to be handled through the usual consultative channels, not openly broadcast. The hon. Gentleman can certainly be assured that the Government are acutely aware of the problems, and are doing everything possible to deal with them. However, I do not confirm the accuracy of what he said.”

On 6 March the House of Commons Select Committee on Defence Fourth Special Report The Threat from Terrorism: Government Response, was issued. Here is a key extract:

GOVERNMENT OBSERVATIONS ON THE SECOND REPORT FROM THE COMMITTEE, SESSION 2001-02

1. The Government welcomes the opportunity to respond to the Committee's report on The Threat from Terrorism. The Government has considered carefully the Committee's report and is grateful for the constructive and positive approach that the Committee took in its enquiry and for the contribution this report has made to the ongoing work on the New Chapter to the Strategic Defence Review. This work is intended to ensure that we have the right concepts, the right forces and the right capabilities to meet the additional challenges we face from international terrorism and other asymmetric threats.

"According to a recent report by the IAEA 'there are currently no comprehensive binding international standards for the physical protection of nuclear material.' Radioactive material is even less protected." [HC348-I para 69]

18. The Government recognises the Committee's concerns. The Convention on the Physical Protection of Nuclear Material, and recommendations on The Physical Protection of Nuclear Material and Nuclear Facilities provides a level of protection for nuclear material when being transported internationally. In addition, international agreement has been reached on Physical Protection Objectives and Fundamental Principles and these have the advantage of allowing each State to enact measures appropriate to its own circumstances.

Meanwhile , in France, criticisms of theSTOA report, and the professionalism of its authors, had arisen. WISE Paris fought back. Here is the current state of the debate:

WISE-Paris has decided to lodge a complaint with the Paris County Court (Tribunal de Grande Instance) against person or persons unknown. A document containing an internal non-scientific review of a report on La Hague and Sellafield reprocessing plants conducted by WISE-Paris on behalf of the European Parliament has obviously been forged and distributed to the press with the aim of damaging WISE-Paris' reputation. According to the weekly newspaper *La Manche Libre*, M. Bernard Cazeneuve, French Member of Parliament and Mayor of Cherbourg, has admitted having distributed the contentious document to the press.

You will find below the links to access our information on this issue.

Sincerely,

Mycele Schneider
Director of WISE-Paris
Chief Editor of Plutonium Investigation

To access our information on this Complaint:
<http://www.wise-paris.org/english/ournews/news3.html>

To download our Press Release dated 12/3/02 and its Annex (4 pages):
<http://www.wise-paris.org/english/reports/020312traduc.plainte.pdf>

To download the text of the complaint (8 pages, only available in French):
<http://www.wise-paris.org/francais/rapports/020219PlainteWP.pdf>

Press release, 12 March 2002 For immediate publication

WISE-Paris lodges a complaint against person or persons unknown for forgery and the use of forged documents Handling and dissemination, for defamatory purposes, of documents pertaining to the study for the European Parliament on La Hague and Sellafield

WISE-Paris has decided to lodge a complaint with the Paris County Court (*Tribunal de Grande Instance*) against person or persons unknown. A document containing an internal non-scientific review of a report conducted by WISE-Paris on behalf of the European Parliament has obviously been forged and distributed to the press with the aim of damaging WISE-Paris' reputation. According to the weekly newspaper *La Manche Libre*, Mr. Bernard Cazeneuve, French Member of Parliament and Mayor of Cherbourg - a city close to the La Hague plant - has admitted having distributed the contentious document to the press.

Since November 2000, when the European Parliament's Directorate General for Research commissioned a study on the possible toxic effects from the nuclear reprocessing plants at Sellafield (UK) and La Hague (France)¹, WISE-Paris has had to face a barrage of unprecedented libellous remarks. WISE-Paris has hitherto not responded so as not to fuel the controversy sparked by various officials in the nuclear industry and politicians who serve as effective relays for this industry. However, a turning point seems to have been

reached with the dissemination of a forged official report. WISE-Paris has thus chosen to lodge a complaint so that responsibilities may be clarified.

What is this all about? On 10 November 2001, the daily newspaper *La Presse de la Manche* published an article entitled “Crash on Cogema: the Wise report taken apart” (“*Crash sur la Cogema: le rapport Wise démonté*”) based on a document allegedly issued by a “scientific advisory group of the European Parliament”. This document was widely distributed to the press by Cherbourg’s municipal administration and WISE-Paris was thus able to obtain a copy. When questioned on this, an official in the European Parliament’s Directorate General for Research replied that “*no such document was issued by a so-called ‘Scientific Advisory Group’*”. He added that it would appear to him that the article in *La Presse de la Manche* is “*based on a forged document*”. On 5 December 2001, this response was officialised via a letter from Paul Engstfeld, Head of the Division Industry, Research, Energy and Environment and STOA.

Mr. Engstfeld also stated that “*during its meeting held on 23 October [2001], the European Parliament’s STOA Panel decided to publish the study carried out by WISE-Paris with the reviews made by the experts selected by the STOA panel, including the internal appraisal made to STOA by Dr Gaillochet of the OPECST*”, the French Parliamentary Office for Evaluation of Scientific and Technological Options (*Office parlementaire des choix*

scientifiques et technologiques)². Subsequently, Mr. Philippe Gaillochet sent a letter to STOA in which he indicated that he was resigning as a reviewer and “*formally forbade STOA to publish his review*”. According to Mr. Engstfeld, the contentious document “*is indeed the document written by Dr. Gaillochet, but it has been altered*”. To our knowledge, Mr. Gaillochet has never replied to the letter sent to him by STOA officials requesting an explanation.

WISE-Paris strongly objects to the multiple attacks it has come under and which aim to discredit the scientific value of its work. It would very much like to see the debate and the controversy focusing on the content of its work.

The report conducted by WISE-Paris was made public by the European Parliament along with the opinions of three external reviewers. Contrary to what some people try to make the public believe, all three (see Annex) support and justified the publication of this report for the Members of the European Parliament. Even if some people do not like the results of the study, it may be noted that, to date, the European Parliament’s Directorate General for Research has not received one single technical opinion calling into question the content of the study.

¹ This study is part of the European Parliament’s program to assess scientific and technological questions (Scientific and Technological Options Assessment or STOA). The STOA program is supervised by a panel of 33

Members of the European Parliament (MEPs). To consult the report, see http://www.wise-paris.org/english/stoa_en.html

² Following the positive review reports, the STOA panel decided unanimously (minus one abstention) to publish the report conducted by WISE-Paris.

Since its publication in November 2001, the 170-page report has been downloaded over 4000 times, merely from the WISE-Paris Internet site. It is also available on the European Parliament’s website.

Annex

The external experts’ opinions of the STOA report confirm the scientific quality of the study conducted by WISE-Paris on the La Hague and Sellafield plants.

Three external scientific reviewers analysed our report, following a proposal by Members of the European Parliament (including those most opposed to the study), on

behalf of the Scientific and Technological Options Assessment (STOA) Panel. Their conclusions are quite clear, as can be seen by the following extracts:

Jean-Claude Zerbib, radioprotection engineer, advisor to the director of the IPSN (State Institute for Nuclear Protection and Safety) and the CEA (Atomic Energy Commission) (France): *"The WISE-Paris Report constitutes an important study of the problems linked to the [nuclear] fuel reprocessing at the Sellafield and La Hague plants. (...) If it is possible to find in the technical literature certain elements covered in this report, we have to stress that the latter does not have any equivalent when it comes to taking into account globally and to critically approach the problems of the "back end" of the nuclear fuel cycle. The numerous technical annexes that accompany the report constitute a useful complement for the Report that merits for all these reasons a large publication"*. (Translation by WISE-Paris)

Dr. Peter I. Mitchell, Department of Experimental Physics, National University of Ireland, Dublin: *"The report contains a wealth of background information for legislators and regulators and, in the main, provides a lucid and uncomplicated description of the main issues attending the reprocessing of spent nuclear fuel at the present time. (...) All this I have found to be helpful and informative. (...) The report deals objectively with the subject of doses to individuals and critical groups..."*.

Dr. Ian Croudace and **Dr. Phillip Warwick**, Geosciences Advisory Unit, Southampton: *"Overall this is an interesting document that has assembled an array of data from various sources in an attempt to build a persuasive case for ceasing reprocessing operations in France and the UK. We suspect, however, that these countries (perhaps reluctantly) have already accepted the case and that a slow wind down is planned. The STOA document provides good reasons for curtailing nuclear reprocessing in favour of fuel storage on safety and financial grounds. The rate at which all of these seemingly inevitable changes will occur is the key question."*

This was reported in Le Figaro on 12 March:

**NUCLÉAIRE Son étude commandée par le Parlement européen
avait été discréditée par un document trafiqué.
L'association Wise-Paris porte plainte
L'affaire du rapport manipulé de la Hague**

Fabrice Nodé-Langlois
[12 mars 2002]

Alors que le ministère de la Défense a retiré la semaine dernière les missiles sol-air Crotale autour de la Hague, la polémique portant sur les conséquences d'une attaque terroriste sur l'usine de retraitement de la Cogema vient de se déplacer sur le terrain judiciaire.

L'association Wise-Paris, un cabinet d'expertise privé, antinucléaire, a déposé plainte contre X, le 19 février dernier, auprès du tribunal de grande instance de Paris, pour « faux » et « usage de faux ».

L'association dénonce la diffusion d'un faux rapport, à l'automne dernier, dans le seul but de discréditer une étude qu'elle a réalisée sur l'usine de la Hague.

Cinq jours après les attentats du World Trade Center, Le Monde publiait un article intitulé : « Un avion sur la Hague créerait un Tchernobyl » (1). Le quotidien citait une étude de Wise-Paris réalisée pour le compte de la direction générale de la recherche du Parlement européen, dans le

cadre d'un programme d'évaluation des questions scientifique appelé Stoa, selon l'acronyme anglais. Selon Wise, 17 600 tonnes de combustible nucléaire usé sont stockées à la Hague. Les piscines de l'usine contiennent 287 fois plus de césium 137 qu'il n'en a été relâché dans le fameux nuage de Tchernobyl. En cas d'accident à la Hague, calculait Wise en annexe de son rapport, la dose radioactive collective serait cinquante fois celle reçue à la suite de la catastrophe ukrainienne de 1986. Des estimations aussi inquiétantes n'ont pas manqué de rapidement déclencher une polémique, en France, et particulièrement dans le département de la Manche.

C'est à Cherbourg justement que, le 10 novembre, paraît un article dans La Presse de la Manche : « Crash sur la Cogema : le rapport Wise démonté ». Le quotidien départemental cite un rapport intitulé « Groupe de conseils scientifiques, rapport d'évaluation du rapport d'étude définitif sur les éventuels effets toxiques des usines de retraitement nucléaire de Sellafield et de la Hague ». Ledit rapport estime que le calcul de Wise sur la quantité de césium qui pourrait être relâchée à la Hague est « hautement controversé et dépourvu de crédibilité ». Le document de Wise, marqué par des « insuffisances méthodologiques, (...) n'offre aucun fondement solide pour quelque position politique que ce soit ». En somme, un contre-rapport officiel règle sévèrement son compte à l'étude d'une association sur une question controversée.

Sauf que ce « groupe de conseils scientifiques » est inconnu au Parlement européen. Le 5 décembre 2001, Paul Engstfeld, fonctionnaire au Parlement européen, chargé du Stoa Panel, écrit à Wise qu'il « lui semble que le rapport cité dans La Presse de la Manche est un faux ». D'où vient-il ? Il a été diffusé par la mairie de Cherbourg. A-t-il été forgé de toutes pièces ? Non.

C'est en novembre 2000 que le « panel Stoa » du Parlement européen a confié à Wise une étude qui ne portait d'ailleurs pas sur l'usine de la Hague face au risque accidentel ou terroriste, mais plus largement sur les effets toxiques possibles de l'usine de la Cogema et son équivalente britannique de Sellafield. L'identité même de Wise, sans parler du contenu du rapport, étant suspecte aux yeux de certains élus du Parlement, le « panel Stoa » décide, en juin 2001, de demander à trois experts indépendants d'évaluer le document de 150 pages produit par l'association.

L'un de ces trois « relecteurs », Ian Coudrace, du Southampton Oceanography Centre, juge le rapport de Wise « alarmiste ». Un autre, Peter Mitchell, de l'université nationale de Dublin, s'interroge sur les calculs de Wise. En plus des trois experts, une « évaluation administrative », habituelle selon les usages complexes de ce groupe du Parlement européen appelé Stoa, a été rédigée. Son auteur est un Français, fonctionnaire à l'Office parlementaire d'évaluation des choix scientifiques et technologiques, le docteur Philippe Gaillochet. Il a rédigé son évaluation en anglais.

Or, il s'avère que le contre-rapport publié par La Presse de la Manche ressemble à s'y méprendre au travail du docteur Gaillochet. « On m'a dit qu'il existait un papier en français qui ne correspondait pas tout à fait à ce que j'avais écrit », raconte Philippe Gaillochet au Figaro. Son évaluation n'était, selon le règlement du Stoa ou selon l'usage des révisions des publications scientifiques, pas destinée à être publiée. Le 23 octobre, en pleine polémique, le Stoa a souhaité publier le rapport Wise ainsi que les trois révisions scientifiques et celle du

docteur Gaillochet. Devant cette décision, celui-ci a démissionné de ses fonctions d'assesseur au Stoa.

Qui a traduit, maquillé et diffusé le travail du docteur Gaillochet ? Bernard Cazeneuve, le député-maire de Cherbourg, qui s'en est déjà expliqué dans La Manche libre (2), interrogé par Le Figaro, affirme n'avoir « jamais vu ce document ». Il ne nie pas en revanche que la mairie, qui reçoit « des tonnes de documents sur le nucléaire », ait pu le diffuser. Le maire préside la Commission spéciale permanente d'information de la Hague et, à ce titre, diffuse de nombreux documents sur le nucléaire. « C'est de l'agitation antinucléaire », résume-t-il, habitué aux joutes avec Wise, Greenpeace et les associations locales. La preuve ? Le rapport Wise n'était pas destiné à être publié, en septembre, avant son adoption par le panel du Parlement européen.

L'association estime néanmoins qu'il y a eu « faux » et « usage de faux », un pas de plus franchi dans la guerre de communication qui sévit depuis des décennies autour de la Hague, un pas grave selon elle. Pour l'heure, une enquête préliminaire a été ouverte par le parquet de Paris.

(1) Le Monde du 16 septembre 2001.

(2) La Manche libre du 2 décembre 2001.

RADIATION PROTECTION: COMMISSION ENFORCES EURATOM DIRECTIVES

France, Germany, the Netherlands, Portugal and the United Kingdom have not transposed the Euratom Directives on Basic Safety Standards and on Medical Exposures, two Directives aiming to provide protection from ionising radiation. Ireland has not yet applied the Medical Exposures Directive in national law. The deadline for transposition of these Directives was May 13, 2000. The European Commission has therefore decided to take these five countries to the European Court of Justice, under the Euratom (European Atomic Energy Community) Treaty. The Basic Safety Standards Directive aims to improve protection against ionising radiation, which is produced during various medical and industrial processes as well as being a product of the nuclear fuel cycle. To this effect, it sets out new (lower) exposure limits, requirements to justify the use of radioactive substances, and sets out a principle of keeping exposures "as low as reasonable achievable". It also regulates natural radiation in the workplace and includes new requirements for assessing population exposure. The Medical Exposures Directive, supplementing the Basic Safety Standards Directive, improves the level of radiological protection for patients and medical staff, sets out a more precise justification principle, distributes responsibilities, and sets requirements for qualified experts in the medical area.

(Europe Energy - 121/9.5-22)(SD)

The UK National Radiological protection Board (NRPB) earlier this month published its own critical appraisal of the STOA report:

Possible Toxic Effects from the Nuclear Reprocessing Plants at Sellafield (UK) and Cap de la Hague (France) by WISE-Paris

This is a report prepared by an external contractor, WISE-Paris, in the context of the Scientific and Technical Options Assessment Workplan for 2000.

The report is published by the European Commission Directorate General for Research as a contribution to the scientific debate on the possible toxic effects from the reprocessing plants. Due to concerns about its lack of objectivity expressed by some members of the European Parliament, three independent experts were asked to provide reviews on the report. These reviews accompany the published report. Overall, the report brings together a considerable body of information about the operation of the two nuclear fuel reprocessing plants. From a radiological protection perspective, however, some of the conclusions drawn in the report are based on erroneous comparisons or reflect a lack of objectivity. The report fails to make a central point that both Sellafield and La Hague have, at least in recent decades, operated within a closely regulated legal framework that derives not only from national considerations but also from regional multi-national requirements imposed by the Euratom Treaty.

The executive summary draws together many of the erroneous comparisons and misunderstandings that are present, although in a more diluted form, in the main text of over sixty pages. Particular points are as follows. The section on 'Conclusions on Sellafield releases' (section 5) discusses deposition of plutonium in the Sellafield environs, mentioning sea to air transfer, which is an extensively studied transfer mechanism. The report comments that 'the average activity due to actinides [presumably in air] from the sea may occasionally exceed the international limit of 1 mBq/m³': there is no such international limit. The same section propagates the common error of comparing concentrations of technetium-99 from controlled discharges with standards that apply only in controlling foodstuffs following a radiological emergency.

Later in this section, critical group doses occurring in the mid 1970s to early 1980s from Sellafield discharges are discussed. Discharges from Sellafield were much greater during those years than now and so the critical group doses were correspondingly higher. Furthermore, the radiological standards against which doses and discharges were compared were generally less restrictive in those years than they are now. Nevertheless, the report makes the disingenuous comparison of *past* critical group doses with *current* dose limits. It attempts to justify this position by stating that doses from past discharges and direct radiation are not included in comparisons with the dose limit, whereas in fact in the UK they are. In particular, critical group doses from Sellafield discharges are assessed retrospectively using measurement data, which would of necessity include any contribution from historical discharges. This raises another point: critical group doses depend not only upon activity concentrations in the environment but also on the habits, food consumption patterns, etc, of the exposed individuals. For the major sites in the UK, including Sellafield, these habits are established from field surveys and so the resulting calculated doses can be viewed with a high degree of confidence. Therefore, comments in the report to the effect that dose limits would be exceeded if German statutory dose assessment assumptions were adopted are both irrelevant and misleading.

Section 7 of the executive summary refers to the ICRP radiological protection principles raising the issue of whether releases from the two reprocessing plants are justified in radiological protection terms. Justification is one of the three principles of protection of ICRP. It requires that any use of radiation, referred to as a practice,

should be beneficial in overall terms. Importantly, ICRP states that the principle applies to the complete practice (in this case, reprocessing) and not one facet, the releases. To do otherwise would be analogous to condemning the internal combustion engine solely on the basis of its emissions.

The main text of the document contains the errors and misrepresentations noted for the executive summary. But there are additional points which illustrate a lack of understanding of radiological protection and of the environmental transfer of radionuclides. Section 5.4.1 refers to the amount of activity that can be transferred from sea to land as 'about a 1000 body burdens'; this is an archaic term which conveys no meaning to the reader and, in any case, to be present in the body in this manner, all of the activity would have to be inhaled or ingested which would be an extremely unlikely occurrence given the widely dispersed area over which sea to land transfer occurs. In section 5.4.3 the final sentence strongly suggests, because of the context of the paragraph, that the paper of Popplewell *et al* showed higher concentrations of plutonium in autopsy samples from West Cumbria than had been predicted by models. It did not: that comparison was not made in the paper. Instead, Popplewell *et al* showed that the concentrations of plutonium were generally higher than those found elsewhere in the UK.

The section on 'Comparative studies' (7.3.3) contains a statement that the collective doses from Sellafield (300 manSv) and from La Hague (1100 manSv) 'may be compared with the reference level for releases from Swedish nuclear reactors of 5 person Sv per GW year capacity'. But how? It may be possible to make some sort of comparison if information on the electricity that had been generated from the fuel being reprocessed (in GW years) had been provided. The authors should have pointed this out instead of resorting to the expedient of comparing two relatively large numbers with one small one.

Finally, the report represents a substantial body of information and must have taken a considerable amount of effort to compile. It is, however, difficult to escape the conclusion that the objectivity of the report is compromised.

John Cooper
National Radiological Protection Board
March 2002

Letter from Nuala Ahern MEP to European Commission President Prodi

25th February 2001
Mr Romano Prodi,
President
European Commission
Rue de la Loi, 200
B-1049 Brussels

Dear Mr Prodi,

On September 20, 2001 I tabled an oral question for Question Time at the part-session in October I (ref H-0771/01) asking "will the Commission establish an immediate review of the security of all nuclear facilities in the European Union." On October 2 the Commission, in a written reply stated "In close co-operation with the International Atomic Energy Agency in Vienna, the *Commission will thus carry out such a study, focusing on the security of nuclear installations.*"

On December 12, 2001 I tabled an oral question for the Question Time part-session in February 2002 (ref H-0956/01) asking the Commission to "...make a statement on the progress it has made on the security study it is conducting." The Commission replied in writing " ...*the authorities of the Member States and*

the candidate countries have stepped up their existing physical protection measures for installations that may be at risk, particularly nuclear installations. The national police authorities are responsible for these measures”.

I consider these two replies to be contradictory. The first states that the Commission is to carry out a study into the security of all nuclear facilities in the EU. The second states that this is a matter for individual member states. I would like an explanation for this change of position, as I regard this matter of utmost importance to the security and well being of citizens of the European Union. I would further call on you to clarify if, and when the Commission intends to fulfil its duty and conduct an immediate review of security of all nuclear facilities in the EU.

Yours sincerely,

Nuala Ahern MEP

European Commissioner Confirms Discharge Data Published in the WISE-Paris Report on Sellafield and La Hague

WISE-Paris, 15 March 2002

[posted 15/03/2002]

On 12 March 2002, Mrs. Margot Wallström, European Commissioner for the Environment told the European Parliament Assembly that the analysis of the discharge data in the WISE-Paris report on La Hague and Sellafield (1) was *"found to be consistent"* with data collected by Commission services in a recent report (2).

On the question by Irish MEP Nuala Ahern (Green Group), Mrs Wallström pointed out further that the *"difference between the two documents lies in the fact that the Commission document simply reports discharge data whereas the WISE report presents an analysis of the impact of these discharges on human health and the environment"*. She added that the *"so-called Marina II study"* that had been launched in 2000 will be completed this coming summer and that *"it will provide additional detailed information on radioactive discharges and resulting activity concentrations"*.

Notes

1. Schneider, M. et al, "Possible toxic effects from the nuclear reprocessing plants at Sellafield (UK) and Cap de La Hague (France)", STOA Report, European Parliament, November 2001.
<http://www.wise-paris.org/english/reports/STOAFinalStudyEN.pdf>
2. Radiation Protection Report 127 (Radioactive effluents from nuclear power stations and nuclear fuel reprocessing plants in the European Union, 1995 - 1999)
<http://www.europa.eu.int/>

EUROPEAN COMMISSION Question Time, European Parliament, Strasbourg, 12 March 2002

El Presidente. - Pregunta nº 41 formulada por Nuala Ahern (H-0093/02):

Asunto: Evaluación de las emisiones radiactivas de Sellafield y Cap de la Hague

¿Ha efectuado ya la Comisión una evaluación y, en caso negativo, va a iniciar una evaluación comparativa inmediata de los detalles de las emisiones y efluentes radiactivos liberados respectivamente por la planta de reprocesamiento de residuos y combustibles nucleares de Sellafield, operada por BNFL en el Reino Unido, y por la planta de reprocesamiento de residuos y combustibles nucleares de La Hague, operada por COGEMA en Francia, tal como se publicó en el Informe de protección radiológica 127 de la Comisión, Efluentes radiactivos de las centrales nucleares y de las plantas de reprocesamiento de combustibles nucleares en la Unión Europea, 1995-1999, y en el informe preparado para el Programa de Evaluación de las Opciones Científicas y Tecnológicas del

Parlamento Europeo (STOA) sobre "Posibles efectos tóxicos de las plantas de reprocesamiento nuclear de Sellafield (Reino Unido) y Cap de la Hague (Francia)", publicados respectivamente en diciembre de 2001 y noviembre de 2001?

Para responder esta pregunta, tiene la palabra de nuevo la señora Comisaria.
2-224

Wallström, Commission. - Mr President, I am wearing my Irish scarf today. In response to the question, the Commission has compared the following two reports: its own radiation protection report 127 (Radioactive effluents from nuclear power stations and nuclear fuel reprocessing plants in the European Union, 1995-1999), published in December 2001; and the so-called WISE report, drawn up for the European Parliament's Scientific and Technological Options Assessment Programme (STOA), on the possible toxic effects from the nuclear reprocessing plants at Sellafield and Cap de la Hague in France, published in November 2001.

In particular, the Commission compared the reporting of radioactive effluents released from the Sellafield and La Hague sites. The Commission can confirm that the data reported in the two documents were found to be consistent. The difference between the two documents lies in the fact that the Commission document simply reports discharge data whereas the WISE report presents an analysis of the impact of these discharges on human health and the environment. A separate analysis of the data carried out on behalf of the European Commission is now available on the Europa website and I will ensure that a copy is made available to the honourable Member.

76 12-03-2002

In order to obtain a more complete picture of the impact of all historical discharges on the northern European marine environment, in 2000 the European Commission launched the so-called Marina II study, which will be completed this summer. It will provide additional detailed information on radioactive discharges and resulting activity concentrations. It will also make an assessment of their levels in northern European marine waters and their impact on human health and on the environment.

2-225

Ahern (Verts/ALE). - Thank you for your answer, Commissioner. I am aware of the Marina study. I am very interested in its outcome. It will not report for a while yet, as you said. However, I should like to ask, based on that and the assessment you have already made, what further steps the Commissioner would recommend to control the continued emissions of radionuclides from Sellafield and La Hague. They are the largest man-made radioactive emissions and pollutants and do not pollute just EU Member States but migrate across the globe. Indeed, Norway has complained particularly about the Arctic fishing grounds being affected. What would you recommend as a result of all this assessment and forthcoming studies?

You recently visited Ireland - you have your Irish scarf on! You indicated that you are concerned about the emissions from Sellafield. We also have a recent RPII report, which I would recommend the Commission to study. You urged the Irish Government to pursue the issue at EU level instead of simply under the OSPAR. I have also made a complaint. I want to ask you to address that in depth. I have had to engage a lawyer to follow up the fact that this has not been dealt with responsibly over the last couple of years.

There has also been a recent departure of a Commission official, Mr Curry, to the board of BNFL. Has the Commission agreed that this is not a conflict

of interest?

2-226

Wallström, Commission. - Mr President, firstly, I would like to say to Mrs Ahern that the overall objective lies in meeting the OSPAR commitment, the aim being to achieve a substantial reduction in discharges by 2020. The Commission is committed to helping OSPAR achieve that aim and the Member States will assist them to that end. We are, of course,

following developments closely. That is our task, but only after the Marina study is complete will we be provided with a good basis and platform, a scientific assessment of the situation enabling us to judge what exactly we should do and find the correct measures, if necessary, to help reduce discharges. So once the Marina study is complete there will be another opportunity to take stock and decide on the measures to come.

I have indeed heard and seen in the media that Mr Curry has been appointed to the Board of the BNFL. Since, to the best of our knowledge, Mr Curry had not contacted us in advance to notify us of this new appointment, the Director-General for Personnel and Administration sent him a letter asking him to clarify his situation further and reminding him of his obligations under the Staff Regulations. We are looking forward to a reply from him.

2-227

Rübig (PPE-DE). - Herr Präsident, sehr geehrte Kommissarin, meine sehr geehrten Damen und Herren! Mich würde interessieren, aufgrund welcher Rechtsnormen und technischen Richtlinien eigentlich die Bewertung der radioaktiven Strahlung erfolgt?

2-228

Wallström, Commission. - We make use of our Legal Service to assist with our obligations under international conventions and with the basic safety standards which it is the role of the Commission to establish. We also make use of experts and have expert committees comprising representatives and experts from all the Member States. We base that on the best available scientific knowledge.

But the Commission's stance on assessing radiological discharges is still confused-witness this:

Subject: Wallström, 18 March 2002

Ian,

We asked Wallström's office what additional report she was referring to in her response to Nuala's question on STOA. (I thought there might have been an official assessment now of the STOA Report). But they only refer to this old report.

Here is the answer of the press people:

"Le Cabinet de Mme Wallström vient de me confirmer que c'est bien le rapport "Assessment of the Radiological Impact on the Population of the European Union of Discharges from European Union Nuclear Sites between 1987 and 1996" à:
<http://europa.eu.int/comm/environment/radprot/128/rp-128-en.pdf>

Cordialement,

Ann Maher
Centre d'information
Direction-générale Environnement
Commission européenne

*We have calculated that over half of the La Hague discharges happened AFTER the EC document

But the UK government are now accepting the terrorist threat Last Thursday, 14 March, 2002, BBC on line reported

Bioterror plans to be tested

Iraq was found to have chemical weapons stockpiles

An international exercise is to be held to test plans to deal with the threat of biological, chemical or **radio-nuclear terrorism**.
The world's most powerful nations agreed the move at a two-day conference in London to discuss how best to deal with the threat.

Health Ministers from the G7 nations plus Mexico agreed that international co-operation was key to protecting citizens across the world.

The meeting, which ended on Thursday, builds on an international partnership forged at a meeting in Ottawa, Canada, last November.
Ministers endorsed a World Health Organization resolution calling on member states to share expertise, supplies, resources in the event of an attack to minimise its effect.

They also pledged to share any information they had about the potential risk of an attack. Health Minister John Hutton said: "I think our responsibility as health ministers is to make sure our responsiveness and security measures are working at optimum level.

"The health and wellbeing of our citizens is our top priority."

The threat from chemical and biological weapons was exposed last year during a series of Anthrax attacks in the US in the after the events of 11 September.

Although the details of the exercise have yet to be finalised, it is thought public health and other officials from the eight countries will hold a round-table meeting and role-play their responses to a bioterrorist attack.

The UK government's Chief Scientist, Dr David Harper, said: "They would discuss, for example, if something happened in Paris what action would be necessary in Washington?"

"And - what we can do with people travelling from country to country, what are the real risks, what are the contingencies already in place on air flights, and so on."

Good progress

Canadian Health Minister Anne McLellan said good progress had been made at the meeting.

She said: "I think we all share the agenda of ensuring we are preparing to deal with the challenge of bio-terrorism that has been made all the more real for us in the light of, and the aftermath of 11 September.

"I think our citizens can be reassured our governments are taking very seriously the potential for any biological attack."

The French government sees international cooperation as the way forward.

French Health Minister Bernard Kouchner said: "It was a global issue, it is a global answer. The threat is not behind us, it is facing us."

Mr Hutton reinforced that it was the responsibility of all countries to put in place the measures necessary to respond to any attack. He stressed that an international framework would be put in place to offer "enhanced protection" for people across the globe.

The group will meet again in Mexico in the near future to consider what further action may be appropriate.

And finally, our young people are raising concerns: Ulster TV reported on 19 March

Sellafield slammed by SDLP youth

Members of Northern Ireland's Social Democratic and Labour Party youth wing on 19 March entered the row over Sellafield claiming that the nuclear power plant threatened lives and livelihoods on both sides of the Irish Sea. SDLP youth members were in Dublin to tell the Republic's minister for nuclear safety, Joe Jacob, of their fears, especially since the opening of the new mixed oxide (MOX) reprocessing facility at the Cumbrian plant. The delegation of eight members, mainly from the east coast of the province, told the minister how pollution threatened health and agriculture and that a terrorist strike was more likely following September 11.

The group's chairwoman of campaigns, Yvonne Byrne, said it was pressing for co-operation between the north and south for a united campaign to close Sellafield. "The Irish government has taken lots of steps against Sellafield and is committed to get it, and the MOX plant, closed and we are very pleased with that. We want to keep pressure on the Irish government to continue with that." The 25-year-old added:

"It is one thing for Tony Blair to say that the chances of an accident at Sellafield are slim but the threat of a terrorist attack are more than slim now."

"There are many political, international and environmental groups opposed to Sellafield and we need to build an alliance to have a concerted and co-ordinated campaign." Sellafield has proved a constant sore between Dublin and London with public awareness campaigns and legal action launched by the Irish government in an effort to stop the commissioning of the new MOX facility. The first round of the action, however, failed to prevent the opening of MOX last year. Recently a group of Dublin campaigners revealed plans for a campaign to bombard Downing Street, St James's Palace and Sellafield with postcards opposing the plant. South Down member of SDLP youth, Patrick Clarke, said the opening of MOX was "at best reckless". He said: "The British government assent to the use of the Irish Sea to transport nuclear waste to Sellafield's clients around the world is nonsensical as each vessel will, in effect, have the capacity to cause more damage than a nuclear bomb if attacked or in the event of an accident."

And finally, right up to date, here is a UK Parliamentary reply given on Tuesday, 19 March:

MOX Nuclear Reprocessing Plant (Terrorism), 19 March 2002, col.213

Nigel Dodds DUP MP for Belfast North asked the Secretary of State for Northern Ireland what assessment he has made of the need for stronger civil defence precautions in Northern Ireland to safeguard against the effects of a terrorist attack on the new MOX nuclear reprocessing plant in Sellafield.

Northern Ireland secretary, Dr. John Reid replied “Since the attacks of 11 September on the United States, the British Government have been reviewing their contingency planning arrangements. Much work has been done, and continues to be done, to strengthen our national resilience. This includes an examination of all key sites, of which Sellafield is one.

This work deals both with the counter-terrorism aspect, improving intelligence against the enemy we face and strengthening our defences, and the civil contingencies aspect, ensuring that the necessary resources are in place to minimise the consequences of a successful attack.

It is not possible, for security reasons, to divulge the details of the measures being put in place. However, the Government will do whatever is necessary, at Sellafield and throughout the UK, to maximise our resilience to any threat.”

What is important is that ministers now support their words of reassurance with real deeds to protect us all. The public rubbishing of the detailed work in the STOA study by British ministers & officials is counter-productive, not counter-terrorist. They should think again.