



Worst accident could affect over 60 per cent of population

Evobsmn 19/8/93

Row as secret nuclear fears are revealed

By Severin Carrell

EXCLUSIVE

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ROYAL NAVAL COLLEGE



DEPARTMENT
OF
**NUCLEAR SCIENCE
AND TECHNOLOGY**
RESTRICTED

**Anatomy of a
worst case
scenario,
Page 6**

A NUCLEAR submarine accident in Central Scotland could affect people within a radius of 100 kilometres, placing at risk 60 per cent of the country's population, according to confidential defence documents.

Emergency planners had previously been told by the Ministry of Defence that the maximum possible affected area would be within 10km of Faslane submarine base and Rosyth Royal Dockyard.

A crucial document leaked to *The Scotsman* reveals that a key section covering this "worst case" scenario — believed to be extremely unlikely — has not been issued to Scottish emergency planning officials.

Last night they reacted furiously after learning that the MoD had withheld information. John McVicar, emergency planning officer at Strathclyde, said: "I am bitterly disappointed, but I wouldn't be surprised."

The restricted document reveals defence experts have calculated that tablets to protect against radioactive iodine blown from a nuclear reactor might need to be distributed to people within the 100km radius in the event of a catastrophic accident.

The calculation was made in training manuals for the nuclear accident procedures course at the Royal Naval College, Greenwich, attended by regional council emergency planning officials.

The hypothesis is not mentioned in the two official public safety schemes used by Scottish regional councils for the Clyde Submarine Base at Faslane and Coulpport or Rosyth Royal Dockyard,

which state the maximum likely area for emergency action will be 10km.

Publication of the documents — which are to be passed to Strathclyde Region, Fife Region and Lothian Region — comes as Malcolm Rifkind, the Defence Secretary, today unveils the new £1.7 billion facilities for the Trident fleet at Faslane.

Regional emergency officials are now to recommend that council leaders challenge the MoD to discuss in detail what the hypothetical plans envisage. They said this disclosure will reinforce attempts to push defence officials into discussing in detail the full potential for such a disaster.

Although the Royal Navy calculates the likelihood of such an accident as one in a million years of reactor operation, one restricted document notes there is the "extremely unlikely" possibility in which "the entire contents of a reactor compartment could be released in a very short time (minutes)."

Mr McVicar said the "worst case" scenario "puts us into a totally unmanageable situation. It is a totally unacceptable hazard; there is no way we have the logistical ability to distribute potassium iodate tablets [to counter radiation] out to that area... We're talking in excess of 60 per cent of the population of Scotland."

He added: "It is not for the MoD to decide 'we won't give them that because it will upset them,'... Whether we can plan for it is beside the point. The public have the right to know the true hazard'."

The MoD said last night: "Training courses run by the MoD cover a range of hypothetical scenarios including those which border on the physically impossible." The worst case scenario had "a probability so small to defy precise calculation."

The MoD said the worst-case scenario was included in its Greenwich training programme to give an awareness of a theoretical accident, but current public safety schemes allowed planners to cope with serious accidents which could possibly occur.

It said planning officers were not told because they "are not expected to devise plans for accidents which are virtually inconceivable."

Editorial, Page 12

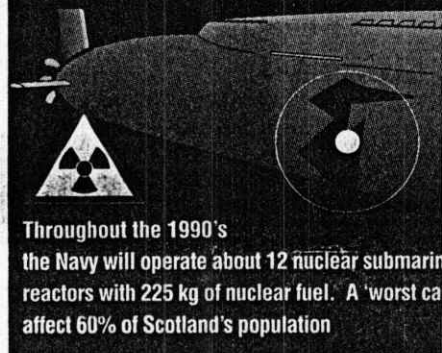
THE WORST CASE

Definition: In the event of a nuclear accident, the area of radioactivity exceeding 100km of the submarine base.



FASLANE & COULPORT

100 km radius



Throughout the 1990's the Navy will operate about 12 nuclear submarine reactors with 225 kg of nuclear fuel. A "worst case" accident could affect 60% of Scotland's population

Sources: Nuclear accident Procedures Course manuals, Royal Naval College, Greenwich

Share prices

By Clifford German
City Editor

SHARES prices rose to new record levels in both London and New York yesterday, as the stock exchange boom continued in anticipation of lower interest rates and faster economic growth.

A total of £12 billion was added to share values when the FT-SE 100-Share Index closed last night at a new all-time high. It ended the day up 48.6 points at 3073.6 in the

biggest interest rate rise since January.

Prices rose in London, adding more than 100 points to the index. In New York, the 900 million dollar market was attracted by a volume of trading abroad, but it all came to an official finish at the official figure of 3073.6 in the fourth

is emphatic: a nuclear submarine accident is extremely unlikely. But its own accident planning documents reveal contradictory views on whether it and local councils should prepare for a nightmare.

Documents used for nuclear accident training at the Royal Naval College, Greenwich — passed to *The Scotsman* — show that the Ministry of Defence has undertaken extremely detailed preparations for accidents involving nuclear reactors on board its submarines.

But the preparations only go so far, and the manuals, classified "Restricted" and "UK Restricted", reflect clearly conflicting views within the Royal Navy about the need to plan for the worst case scenario: a sudden breach of both the submarine's nuclear reactor com-

partment, *management of a Reactor Accident*, that the probability of emergency action being required — involving the distribution of potassium iodate tablets to defend against contamination by clouds of radioactive iodine, the greatest hazard — "is so remote that it is not considered worthwhile to plan for countermeasures beyond" ten kilometres.

A further manual, *Hazards of a Submarine Nuclear Accident*, is more emphatic, claiming: "The probability of requiring countermeasures beyond 10km is so low as to negate any requirement for planning beyond this distance."

Despite this, an annexe to the same document, which has never been released to local authority emergency planning officers who have attended the course, considers the unthinkable.

It sets out "benchmark releases" of different radioactive materials and gases such as Iodine, Caesium 134 and 137, Krypton and Strontium, which range from zero to six, depending on the severity of the accident, the age of the nuclear fuel and weather conditions.

Benchmark Release 0 is equated to a radioactive release into the reactor compartment, with some leakage of gases and more volatile materials into the submarine.

But the manual notes that it would inappropriate to consider just this scenario for planning purposes. The reactor containment is penetrated by cooling and cabling pipes, "and these penetrations represent possible leak sites". Another note points out that the reactor compartment "deteriorates with age".

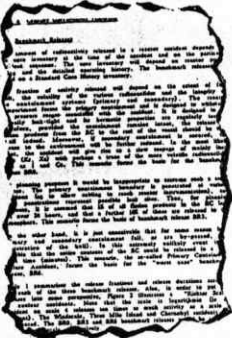
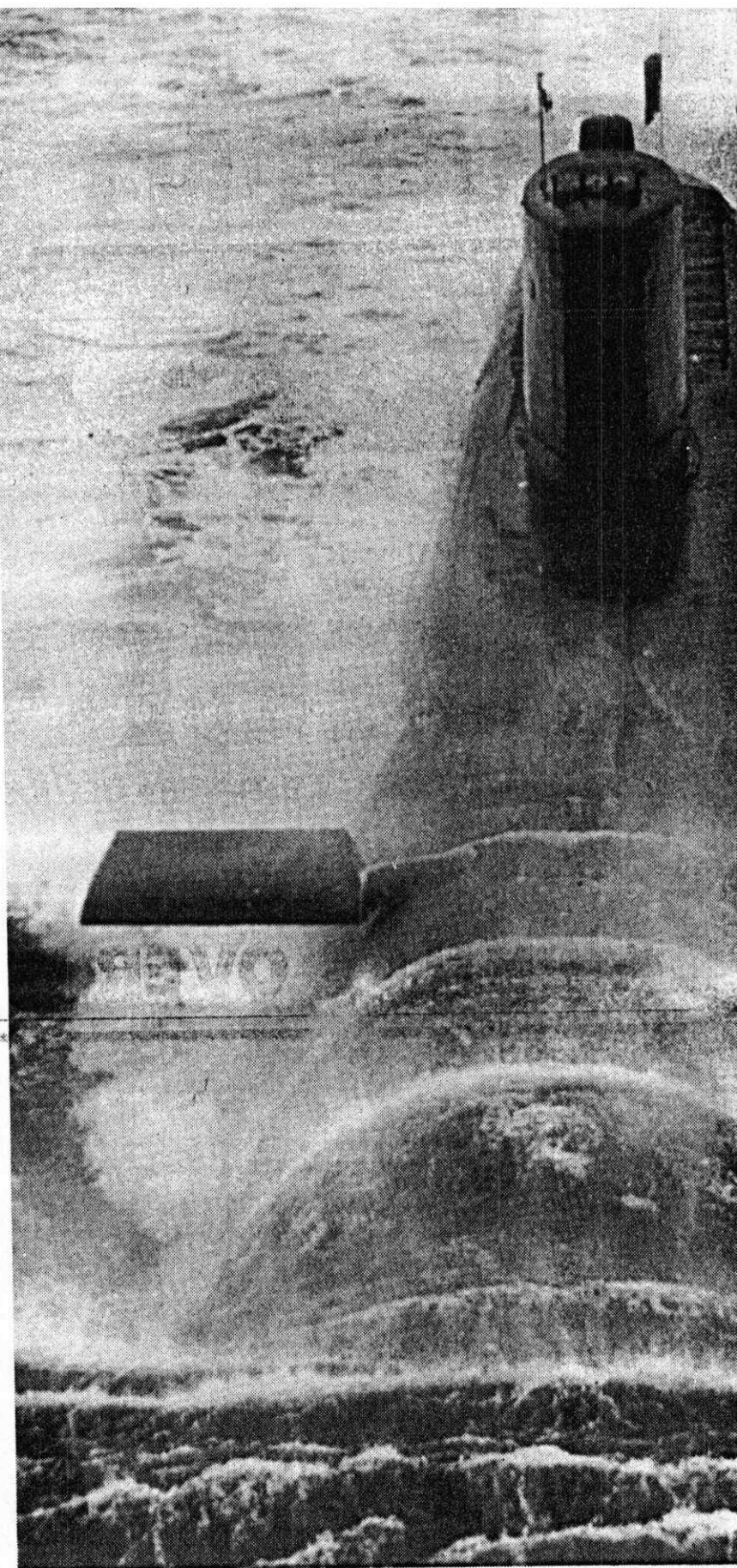
Planners assume that 1 per cent of all nuclear material from a 225 kilogramme nuclear reactor core will leak out over 24 hours, and that 10 per cent of that leakage will be released into the environment. This is the basis of the Benchmark 3 scenario.

It continues: "It is conceivable that for some reason both primary and secondary containment fails, or are bypassed (eg penetration of the hull). In this extremely unlikely event, it is possible the entire contents of the reactor compartment could be released in a very short time (minutes).

"This scenario, the so-called Primary Containment Failure Accident, forms the basis for the 'worst case' benchmark release, BR6."

The effects of this disaster scenario have been plotted in detail, calculating the broadly probable effects on the human body. It states that:

- The emergency guidance level for evacuation, set in this manual at 100 milliSieverts — just over 3



Secrety unveiled: Some of the MoD documents

partment and the vessel's hull. Accurate assessment of the likelihood, and effects, of a nuclear accident are crucial to the success of public safety schemes managed by regional councils for the areas surrounding the Clyde Submarine Base sites at Faslane and Coulport, and around Rosyth Royal Dockyard in Fife.

One document for the college's Nuclear Accident Procedures Course, called *Reactor Accidents*, includes the official estimate that the maximum probability of a catastrophic breach of both reactor vessel and submarine hull is one in one million years of nuclear reactor operation.

By comparison, the probability of very high levels of radioactivity being released into the reactor compartment due to a failure of the reactor's primary cooling system, and small leakages from the compartment, is put at once in 10,000 years of operation.

The manual, dated October 1992 and written by a respected college lecturer called Charles Marchant, who is known to emergency planning officers in Scotland, nevertheless states that "it has to be borne in mind that worse accidents are possible, though improbable, and contingency planning must be sufficiently flexible to allow for them".

times the annual dose limit set by the MoD for its personnel — would be exceeded from it up to ten kilometres from the site.

- The action level for distribution of potassium iodate tablets, which protect the thyroid gland against radioactive iodine, would be "exceeded beyond 100 kilometres".

About 60 per cent of contamination of the public

would arise from inhalation and 34 per cent from "groundshine", the radioactivity emitted from settled particles.

In some circumstances, radioiodine would be responsible for 90 per cent of total exposure.

Distribution of potassium iodate is crucial. To protect against thyroid cancers, they flood the gland with stable iodine to wash out or block

the carcinogen radioiodine.

If administered immediately, it is effective. If taken to two hours reduces to 75 per cent, and to 50 per cent after six hours.

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SHORT TALK
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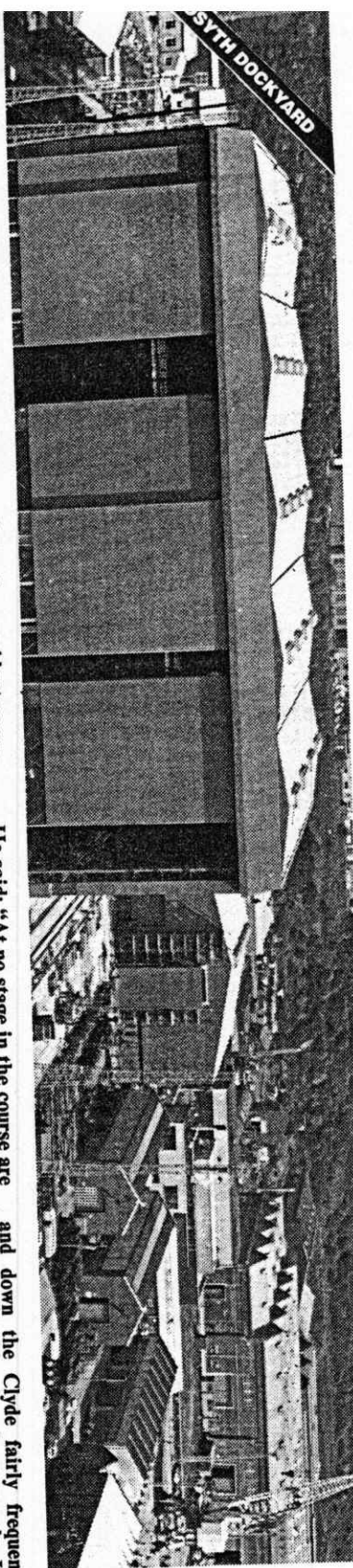
the carcinogenic effects of radioiodine. If administered before or immediately after any contamination, they are totally effective. If taken within one to two hours, their effect reduces to 75 per cent, dropping to 50 per cent in five to six hours.

Even with their distribution to civilians within 2km of a nuclear installation, the logistical difficulties are great, particularly when dealing with people travelling through or temporarily visiting the area. Within that range of Devonport dockyard, in Plymouth, which is due to become Britain's sole nuclear dockyard, 30,000 people live. Several thousand homes are within 2km of Rosyth. Within 100km of Rosyth and Faslane lies the entire Central Belt and about 60 per cent of Scotland's population.

Such logistical difficulties are compounded, according to the college's manuals, by the psychological effects of issuing a warning to the public. People might panic after a warning — increasing their exposure by leaving buildings or becoming involved in traffic accidents. Some naval officers and planners believe the number of potential casualties and fatalities resulting from mass panic or evacuation would outweigh the casualties directly attributable to contamination from the accident.

The risks, one document notes, "should be limited by introducing countermeasures which achieve a positive net benefit to the individuals involved". It is this view which partially underlies the MOD's decision not to reveal the existence of a 100km zone.

lak of secrecy over the nightmare option



and accepts the continuous reassessment from the MOD that such an event is extremely unlikely and that its convey vehicles are designed to hand severe collisions.

they say, their responsibility is to re for the worst. Their official texts clear submarine sites are the public schemes drafted for the Rosyth/Firth of Forth area and the Firth of Forth area. Neither of those documents mentions of the even extremely un- possibility of a catastrophic ent. They only make detailed plans km beyond a submarine.

consequences of a nuclear accident occurring at Faslane, Coulpport or Rosyth. One document they say they did not receive was entitled *Hazards of a Reactor Accident*. It considered the hypothetical consequences of a "worst case" scenario codenamed "Benchmark Release 6", where a nuclear submarine's reactor compartment and hull is catastrophically breached, releasing most of the radioactivity from its 225-kilogramme fuel core.

Such a scenario would require distribution by the civil authorities of potassium iodide tablets to counter radioactive iodine contamination of the thyroid gland — a key component of emergency planning — to the entire population 100 kilometres downwind of the submarine.

He said: "At no stage in the course are planners informed that there is a potential need for the distribution of PITs out to 100km. This is totally new information which moves the goalposts completely." Like Phil Harris, Lothian's emergency planning officer, and Gordon Jacobs in Fife, his consistent complaints have centred on the refusal of officials in Whitehall to accept the inconceivable can occur, or the need to plan for a nightmare. Such arguments have also been consistently put by the three councils at the naval college in Greenwich.

"Lockertie had never happened before," Mr McVicar said. "If the navigation of that aircraft had been slightly out, it would have come down on Chapelcross. "These submarines are navigating up and down the Clyde fairly frequently, along with other merchant vessels. It is perfectly conceivable that you could have a collision at sea triggering off an accident of this magnitude, which is more likely than an accident at a shore base.

"A BR6 release would put us into a totally unmanageable situation. It is a totally unacceptable hazard. There is no way we have the logistical ability to distribute PITs to that area. We're talking about 60 per cent of the population in Scotland, and I don't believe we even have sufficient holdings of PITs."

The crucial point, he said, is that "Whether we can plan for it or not is not the argument. The fact is we should have been given that information. It is not for the Ministry of Defence to decide: 'we won't give them that because it will upset them, but you can sanitise this information because it will be palatable'."

"What I need to know is the worst conceivable accident and if that should be brought into the public domain — whether you can plan for it or not is beside the point. The public have the right to know the true hazard ... It makes a mockery of the whole concept of open-handedness," Mr McVicar said.

Phil Harris, at Lothian Region, said that in the civil nuclear emergency world, the concept that every emergency plan should be extendable even to encompass the highly improbable had been established by Michael Barnes, QC, chairman of the Hinkley Point power station inquiry, in 1990. "This is surely something which should apply to the military as well."

For Gordon Jacobs, at Fife, the considerable logistical problem of distributing potassium iodide to only the 1,400 households within the 2km emergency action zone around Rosyth Royal Dockyard is a tough enough task. He revealed that Fife is shortly to consider pre-distribution of the tablets to all local residents in that area to offset the enormous problems associated with distribution after the event. "To conceive a range downwind of 100 kilometres is quite out of the question," he said.

Nevertheless, he adds: "We wish to know all relevant information concerning planning, otherwise we cannot plan completely. If you're in the situation where you don't know that, it's one hell of a job to know where you are."

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● The emergency guidance level for evacuation, set in this manual at 100 millisieverts — just over 3 times the annual dose limit set by the MoD for its personnel — would be exceeded up to ten kilometres from the site.

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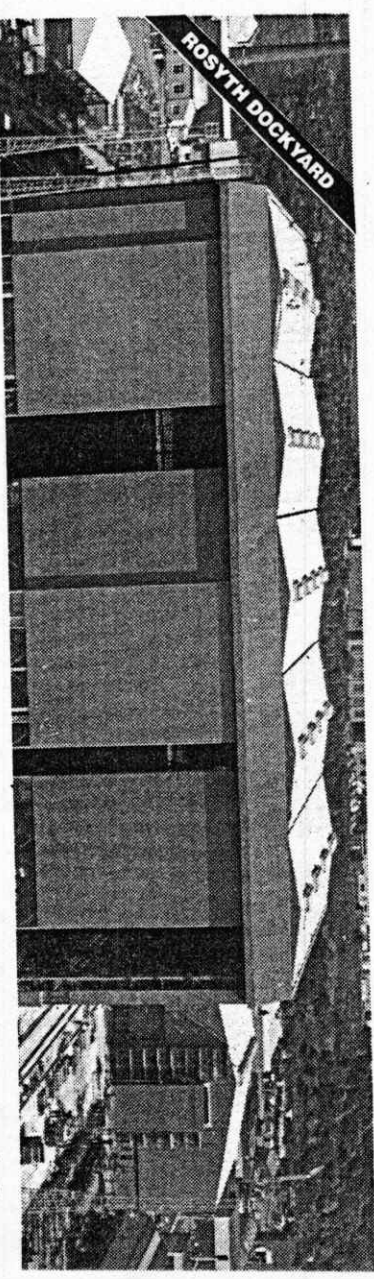
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"These submarines are navigating the public have the right to know the true hazard. It makes a mockery of the whole of the nuclear industry."

A cloak of secrecy over the nig



Mr McVicar, for ten years the emergency planning officer for Strathclyde police and since 1983 in the same post at Strathclyde region, had been consistently told by defence officials that a serious accident would only require action within 300 metres of the site.

Late last year, with Whitehall starting to relax its intense secrecy on nuclear issues, the MoD published guidance to emergency planners which admitted that emergency action could involve people living within 5km of a weapons accident.

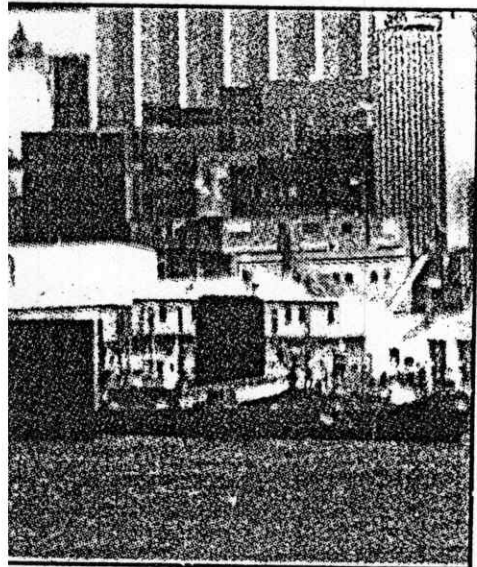
In the highly unlikely event that the high explosive in the nuclear warheads was detonated as it was being carried through Glasgow every month to the Clyde Submarine Base at Couport, everyone within a 45-degree arc out to 600 metres could require evacuation; all those 5km downwind could need to seek shelter and possibly medical help.

Add to this, he said, commuters, passers-by and the casual visitor, and the scale of both that task and one associated with a serious nuclear reactor accident would overwhelm the available resources. "They completely misled us," he said. "How the hell do you attract their attention? You can't just clap your hands and say: 'hear this!'"

Like his counterparts in Lothian and Fife regional councils, Mr McVicar has

COVER-UP

... accident would wipe out half the population



ALERT... new fears over base

DEFENCE chiefs were today urged to "come clean" after secret nuclear documents were leaked.

The documents - withheld from emergency planning officials - show a "worst case scenario" at Faslane could wipe out HALF the population of Scotland.

And they sparked a bitter row between defence chiefs and anxious politicians.

Danger

The leak came as defence secretary Malcolm Rifkind unveiled the new £1.7 billion Trident facility at Faslane.

Defence officials have always claimed a bad Faslane accident would be confined to a 10 kilometre radius of the base.

But in today's documents, the MoD

By ALLAN CALDWELL

admits the danger zone is TEN times greater.

The secret documents, from the Royal Navy College, Department of Nuclear Science and Technology, have been withheld from emergency planning officials at Strathclyde, Central and Lothian regional councils.

Outraged

They are the people who would have to co-ordinate any disaster procedures in the "unlikely" event of a nuclear accident at Faslane and Coulport or Rosyth.

Strathclyde Planning Chairman, councillor Gerald McGrath, said he was "outraged" at the withholding of the information.

And Labour's defence spokesman

(Continued on Page 4)

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National Park with its 1,000 year old giant redwood trees. Then continue to San Francisco for a three night stay.
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FURY AT COVER-UP

(Continued from Page 1)

George Foulkes MP called for the MoD to "come clean" about the public danger.

Peace campaigners at Faslane said the documents proved that the Scottish public is "expendable".

The 100-kilometre radius would mean a possible radiation danger from Faslane for people living as far south as GIRVAN - and as far north as FORT WILLIAM.

It would also include EDINBURGH to the east and ISLAY to the west.

Only two months ago, the MoD issued a survival guide for residents in the Dumbarton area - in the "unlikely event of a radiation emergency".

The booklet reveals that iodate tablets should

be distributed to nearby residents to counter the effects of radioactivity.

But now the Navy admits the threatened area is very much bigger.

Strathclyde's emergency planning officer, John McVicar, said: "The worst case scenario puts us into a totally unmanageable situation."

"There is no way we have the logistical ability to distribute these tablets out to that area."

"We're talking in excess of 60 per cent of the population of Scotland."

Faslane peace camp spokesman Malcolm Boatman added: "This just proves what we have been saying all along."

"We hope now the public will realise the danger they face."

George Foulkes added: "We have always felt this

10 kilometre danger zone was a lot of nonsense, and this news confirms that.

"It also underlines the need for greater safety measures."

"Chernobyl showed us just what can happen in a worst case scenario. It might be a one in a million year threat, but who is to say when that year will be?"

And Gerald McGrath said: "It is outrageous the Navy has not told us this before."

A spokesman for the Ministry of Defence said the document was included as part of a training course to give awareness of a theoretical accident.

He added: "The course covers a range of hypothetical scenarios. The worst case scenario had a probability so small as to defy precise calculation."