

NUCLEAR FREE ZONES SCOTLANDNational Steering CommitteeEXERCISE 'SHORT SERMON 1991'Report by Regional Emergencies Planning Officer for Strathclyde

Purpose of Report; to (i) advise the Committee of the purpose, nature and scale of exercise 'Short Sermon' and (ii) to provide a debrief of exercise activity at the Local Action Headquarters (LAHQ) at Dumbarton, the Military Co-ordinating Authority (MCA) and the Media Briefing Centre (MBC) at Rhu.

1. Introduction

- 1.1. It is the policy of the MoD(Navy) to carry out at least one major nuclear accident exercise biennially, and accordingly exercise 'Short Sermon 1991' was held at the Clyde Submarine Base (CSB), Faslane, from 1400 hours on Tuesday 29 until 1800 hours on Wednesday 30 October 1991.

2. Purpose of Exercise

- 2.1. The purpose of the exercise was to test the operational deployment and emergency procedures of the MoD(Navy) in responding to a nuclear reactor accident in a submarine berthed alongside the main jetty at the CSB. The opportunity was also taken to test the adequacy of the local authority emergency arrangements as set out in Part 4, Section 1, of the MoD's, Clyde Area Public Safety Scheme (CLYDEPUBSAFE), which inter alia prescribes for the Faslane, Coulport and Glen Mallon areas of Strathclyde.

3. Exercise Scenario

- 3.1. HMS Tremor, a nuclear hunter killer submarine of the Trafalgar Class, is undergoing pre-refit tests at Faslane, when a breach of the reactor's primary cooling system occurs. This culminates in the release of fission products to the atmosphere and the discharge of radioactive coolant to the waters of the Gareloch. This category of accident is classified as a maximum design accident (MDA), producing little off-site consequences for the public external to the CSB.

4. Exercise Constraints

- 4.1. The main thrust of exercise activity took place in command/control centres established at Faslane, Rhu, Dumbarton, Edinburgh and London.
- 4.2. Because of the limited time scale of Short Sermon, no attempt was made to evaluate the response times of players deploying to the MCA or LAHQ, and all civilian players assembled at the Regional Offices at Dumbarton prior to the commencement of the exercise on 29 October 1991.

5. Command/ Control Structure The command/control structure upon which all naval public safety schemes are based is comprised of the following elements and in terms of CLYDEPUBSAFE are established at:-
  - 5.1. Nuclear Accident Headquarters (NAHQ) The NAHQ is established at Faslane and is responsible for the effective deployment of naval resources and for all activity to make safe plant and machinery within the CSB. To introduce countermeasures to mitigate the consequences of a nuclear accident to naval and civilian personnel within the Base. The NAHQ reports directly to and receives instructions from Commodore Clyde at the MCA.
  - 5.2. Military Co-ordinating Authority (MCA) The MCA at Rhu is led by the Commodore Clyde, supported by appropriate MoD staff, and he will co-ordinate MoD activity to stem the release of radioactivity from the damaged submarine, with any requirement to impose effective countermeasures to mitigate the effects of radiation to the base workforce, and to the general public. It is here that all radiological data will be received, assessed and interpreted, policy decisions made, and courses of action determined. The MCA has direct links to the MoD cell at London. For the first time in MoD nuclear accident exercises, a number of civilian organisations were present in the MCA during the period of exercise 'Short Sermon'. Those included the National Radiological Protection Board (NRPB), the Scottish Office's Home & Health Department (SOHHD), Strathclyde Police, and representatives from Strathclyde Regional Council and Dumbarton District Council.
  - 5.3. Local Action Headquarters (LAHQ) The local authority level of command/control for the Faslane area, is comprised of a number of civilian organisations, working under the command of the Chief Executive of Dumbarton District Council. Located at the Emergency Control Centre in the Regional Offices at Dumbarton, this group is responsible for the deployment of civilian resources to enable the implementation of the off-site countermeasures advised by the MCA. Membership of the group is drawn from the emergency services, health boards, regional and district council departments and certain central government departments. The MoD(Navy) is represented by a liaison officer at the LAHQ.
  - 5.4. Scottish Office Emergency Room (SOER) An emergency room, staffed by personnel of appropriate departments of the Scottish Office, was operational within St Andrew's House for the period of 'Short Sermon'. The SOER facilitated the flow of information between the MCA, the LAHQ, and appropriate government departments at Whitehall.
  - 5.5. Health Boards Both Greater Glasgow, and Argyll & Clyde Health Boards, specifically requested that the exercise be extended to allow them to test their internal procedures for receiving and handling casualties contaminated by radioactivity.
6. Exercise Debrief
  - 6.1. The following observations are based on my experience as the Local Authority Umpire throughout Exercise Short Sermon, which permitted me unrestricted access to the LAHQ, the MCA and the MBC. I had no access to the Nuclear Accident Headquarters at Faslane and consequently I am unable to comment on the quality of exercise activity within the Clyde Submarine Base.

7. Exercise Activity on 29 October 1991

- 7.1. At 1400 hours on 29 October 1991, Exercise Short Sermon was kick started by the pilot of an executive jet aircraft on a training flight from Glasgow airport, losing control of the aircraft and crashing directly onto the submarine just aft of the conning tower of HMS Tremor, while she was berthed alongside No.3 jetty at the CSB.
- 7.2. This resulted in an explosion which caused damage to the submarine's machinery, fractures of several steam pipes and the release of fission products. As a consequence a nuclear accident was immediately declared and the alerting system as prescribed in CLYDEPUBSAFE initiated. The cascade alerting system was triggered by Strathclyde Police and all agencies associated with the Faslane Safety Organisation were alerted by 1417 hours. Only one wrong telephone number, an unadvised amendment, marred the callout process.
- 7.3. Exercise Weather Was reported as Wind 310 at 3 knots; visibility fair to moderate. Outlook; low cloud and possible drizzle for the next 48 hours.
- 7.4. Accident Classification The incident was originally classified as a Category 1 accident, i.e. defined as an accident likely to lead to the release of a radiological hazard external to the submarine. However, by 1536 hours the accident classification had been upgraded to a Category 3 accident, which is defined as an incident which has resulted in the release of radioactive material to the environment. It was then confirmed that fission products were being released to the atmosphere and that radioactive coolant was being discharged to the waters of the Gareloch.
- 7.5. Internal Countermeasures (CSB) As soon as the Category I accident was declared all crew members were evacuated from the submarine, and repair crews and monitoring teams wearing full protective clothing moved in to assess damage and effect repairs. All non-essential naval and civilian personnel within the base were ordered indoors and instructed to remain in shelter until further notice.
- 7.6. Countermeasures external to CSB At 1543 the MCA advised the LAHQ that an airborne radiation hazard existed downwind, out to a distance of 3.28km and could affect people working and living in the Shandon, Stuckenduff and Blairvadach areas. As a precautionary measure, Strathclyde Police established containment cordons to prevent people entering the hazard area and advised residents to shelter indoors until further notice, Appendix "A" refers.
- 7.7. Casualties The number of casualties was initially advised as 6 but this later rose to 20 including 3 seriously injured and contaminated casualties and 5 fatalities. The contaminated casualties were removed by ambulance and helicopter to the Vale of Leven Hospital and the Glasgow Royal Infirmary for definitive medical treatment and the remainder of the casualties were treated at the base hospital. It was confirmed at this juncture that the executive jet had sunk and that the pilot was missing believed killed.

- 7.8. Issue of Potassium Iodate Tablets About 1630, the MCA in consultation with the National Radiological Protection Board (NRPB), agreed that the airborne radiation hazard was much less than that initially calculated and monitoring results showed that the hazard existed only in the downwind area out to a distance of 879 metres. The MCA instructed that potassium iodate tablets should be issued to all persons residing or working in the downwind area out to a distance of 1km from the Base. Argyll & Clyde Health Board advised the LAHQ and MCA, that the Board would issue the tablets using their own hospital and community resources.
  - 7.9. Off-Site Activity By this juncture there had been considerable activity at the LAHQ. The Ambulance Service, having transported the casualties to NHS hospitals, were stood down. The Water Department reported that neither public nor private water supplies had been affected. The Internal Transport Department had made 75 buses available immediately, with an additional 25 becoming available about 1700 hours. The Education Department reported a small number of school children from homes in the Shandon area would remain overnight in their schools at Helensburgh. The Social Work Department had activated its plan to evacuate Blairvadach Home. HM Coastguard at Greenock advised shipping of a restriction/exclusion zone for fishing vessels in the Gareloch and the Rhu narrows.
  - 7.10. Notwithstanding, the police decided to retain the shelter area at 4km overnight and information to this effect was transmitted over local and national media networks. During the course of the evening local authorities were represented at two media conferences held by Commodore Clyde, but in general their involvement in the exercise was stood down between 1800 hours on the 29th and 0900 the following morning.
8. Continuation of Exercise on 30 October 1991.
- 8.1. During the early hours of 30 October 1991, MoD radiation monitoring teams, supplemented by health physics teams from Scottish Nuclear, extended the radiation monitoring activity to an area of 15 km around the Base. This revealed that initial readings had reduced to normal background levels at all locations beyond a 4km radius of the CSB.
  - 8.2. NRPB confirmed the adequacy of the level of public protection measures being imposed by the MCA and advised that the 4km shelter zone should be retained until further notice.
  - 8.3. For the LAHQ, day 2 of Short Sermon started with a situation report from the MCA, advising that the release of radioactivity from the submarine to the atmosphere and the discharge of contaminated coolant to the Gareloch had ceased at 0830 hours that morning. However, it was confirmed by radiation monitoring that the shore at Ardmore Point was lightly contaminated, and that this area was being fenced off prior to effective clean up by the MoD.
  - 8.4. By mid-morning the MCA advised that HMS Tremor had been stabilised, was level in the water and monitoring results indicated that the level of gamma shine was decreasing. After further consultation between the MCA and NRPB, it was agreed that the 4km shelter zone should be reduced to an area 1km downwind from the Base. Information to this effect was released by the LAHQ to the news media and police containment cordons appropriately adjusted.

- 8.5. At 1130, NRPB advised the LAHQ to provide reassurance radiation monitoring facilities for members of the public who might fear that they had been contaminated and this requirement was undertaken by Argyll & Clyde Health Board using facilities at local hospitals and health clinics. At the same time the local authorities decided to provide a number of 'help lines' to meet the growing demand for information and assistance from members of the public and this facility was established in accommodation adjacent to the LAHQ.
- 8.6. About 1240 hours the Scottish Office Agriculture and Fisheries Department confirmed that with the assistance of local authority environmental health officers, they were monitoring farm produce out to 50km for milk and out to 30km for vegetables. They had also imposed a fishing ban on all waters within a 9km radius of the CSB. Some 30 minutes later the 1km restriction zone was lifted and members of the public were permitted free access up to the CSB perimeter fence. Thereafter, exercise activity at the LAHQ and MCA was restricted to responding to the simulated enquiries from members of the public utilising the exercise 'help lines'.
- 8.7. Following a final Media Conference at Rhu about 1500, at which Commodore Clyde was supported by a ministerial representative, the Chief Superintendent, 'L' Division, Strathclyde Police, and the Chief Executive of Dumbarton District Council, exercise Short Sermon was stood down at 1410 hours.

## 9. Live Media Coverage

- 9.1. During the planning stage of Short Sermon, the local authorities invited members of the local press and a representative of Greenpeace, to attend the LAHQ to interview members of the Safety Organisation and to take any photographs they felt may be of public interest. As a consequence reporters from the Lennox Herald, the Helensburgh Advertiser, the Glasgow Herald, and the Scotsman, joined a Greenpeace reporter in a visit to the LAHQ during the forenoon of 30 October 1991. Specimens of reports which appeared in subsequent publications of those papers are attached at Appendices 'B' and 'C'. It should be noted that MoD did permit members of the press to visit the NAHQ, MCA and MBC.

## 10. Personal Observations

### 10.1. Local Action Headquarters (LAHQ)

10.1.1 At the time of the exercise the emergency control centre at Dumbarton was undergoing long term renovation and as a consequence a new direct private telephone line between the LAHQ and the MCA had not been installed, but this did not present any undue difficulty as 35 lines on the emergency communications system adequately handled the telephone workload.

10.1.2. Telephone communications with the MCA were extremely slow during the first two hours, but improved greatly thereafter and worked most effectively throughout day two.

10.1.3. The exception to this was the facsimile communications system which became overloaded during peak periods. Throughout the exercise two facsimile machines were used for the receipt and transmission of fax material, one dedicated to incoming messages and the other to out-going messages. In future, the number of facsimile machines in use should be doubled and at least one officer should be specifically assigned to handle all fax messages.

10.1.4. After the first two hours of the exercise, several of the agencies present in the LAHQ could have made an equally effective contribution from their normal work location, i.e. Internal Transport, Sewerage, Ambulance and Fire, while others not normally represented, viz; NRPB and SOHHD were meaningfully involved. To take cognizance of this, the composition of the Civil Safety Organisations identified in CLYDEPUBSAFE should be carefully reviewed.

10.1.5. The appointment of an office manager would greatly assist the effective running of the LAHQ and relieve the Chief Executive and his staff officer of mundane administrative matters.

10.1.6. There should be a police presence at the LAHQ to ensure security measures are effectively enforced.

10.1.7. Generally the LAHQ worked well, internal briefings were good, and the flow of information within the centre was acceptable. While the quality of support provided by the Naval Liaison Officer was impressive it became overbearing on occasions and left a question mark over the real reason for his presence in a civilian cell.

10.1.8. During the exercise, the LAHQ was visited by 16 military observers, and the sheer size of this group was very disruptive to the workings of the LAHQ. While such visits are accepted as being necessary, the numbers of each group of visitors should be limited to 6 and each group should be accompanied by a member of the Directing Staff who could advise them of the range of activities being undertaken at the LAHQ.

10.1.9. Short Sermon did not generate sufficient exercise play to keep the LAHQ gainfully employed and an opportunity must be taken in future exercises to provide a physical response to the requirements of evacuation, sheltering, and the distribution of potassium iodate tablets. It is no longer acceptable that those vitally important tasks are evaluated by table top simulation.

## 10.2. Military Co-ordinating Authority (MCA)

10.2.1. Despite being previously advised of the number of civilian representatives attending the MCA at Rhu, the logistical support provided by the MoD was hopelessly inadequate. No specific provision had been made in regard to accommodation or equipment and over an hour elapsed before the police and regional council representatives were each allocated a small table and a telephone in the hallway of the building. Subsequently, no suitable accommodation could be provided for the NRPB or district council environmental health officer, and both representatives opted to work from the LAHQ. Similarly, the SOHHD could not be accommodated at the MCA and effected a compromise, whereby two of their representatives worked alongside the regional council officers and the others took up duty at the LAHQ at Dumbarton.

10.2.2. The overcrowded accommodation facilities at the MCA was further exacerbated by the presence of substantial numbers of naval ratings who had no obvious involvement in the exercise. The situation was not helped by the continual presence of members of the highly influential Nuclear Powered Warships Committee, whose strength of numbers disrupted the operational workings of the MCA.

10.2.3. The frequency and quality of the briefings given by Commodore Clyde was most impressive and he went out of his way to canvass and react to all views expressed by the civilian organisations present. Discussions on possible courses of action were carried out in a most openhanded and democratic manner and I was very pleasantly surprised at the level of integration achieved by civil and naval personnel.

10.2.4. In the early stages of the exercises, the MCA was slow to react to requests for information from the LAHQ but this greatly improved as the exercise developed.

10.2.5. The concept of the corporate approach adopted at the MCA worked well and performance levels will greatly improve once the logistical problems have been addressed.

### 10.3. Media Briefing Centre (MBC)

10.3.1. I attended 3 media briefings in the MBC which was established at the naval transport depot at Rhu. All briefings were well arranged, adequately managed and imparted an acceptable level of information to the media.

10.3.2. In an endeavour to inject a measure of realism into this aspect of the exercise, about 40 trainee journalists, and other members of the Central Information Office and the Scottish Information Office, acted out the role of press reporters and asked some demanding questions of Commodore Clyde and his panel of representatives. Each briefing session brought about different matters of public concern requiring quite specific responses from the panel. It was in the response to such questions that the resilience of the real press was missing, for too many role playing journalists did not pick up on unsatisfactory answers proffered their colleagues and let the panel off the hook by introducing new and often, fairly innocuous questions.

10.3.3. An attempt should be made on future exercises to involve representatives of the real press in exercise briefings as this is the only way the effectiveness of media briefing arrangements can be properly evaluated.

## 11. Conclusion

11.1. While there may be some credence to the criticism that the level of accident upon which exercise Short Sermon was based, fell short of the worst case scenario, I do not subscribe to this view as few exercises are designed to satisfy this criterion. In my experience, all emergency exercises for nuclear or chemical installations, whether civil or military, are based on the most credible accident and not a worst case scenario.

11.2. Regardless of the level of exercise scenario, the emergency response and operational procedures of participating agencies remains the same, although those can be greatly influenced by the nature and scale of the exercise incident.

11.3. If the value of an exercise is to be judged by the number of lessons learned, I would have to concede that Short Sermon had been a useful and worthwhile exercise.

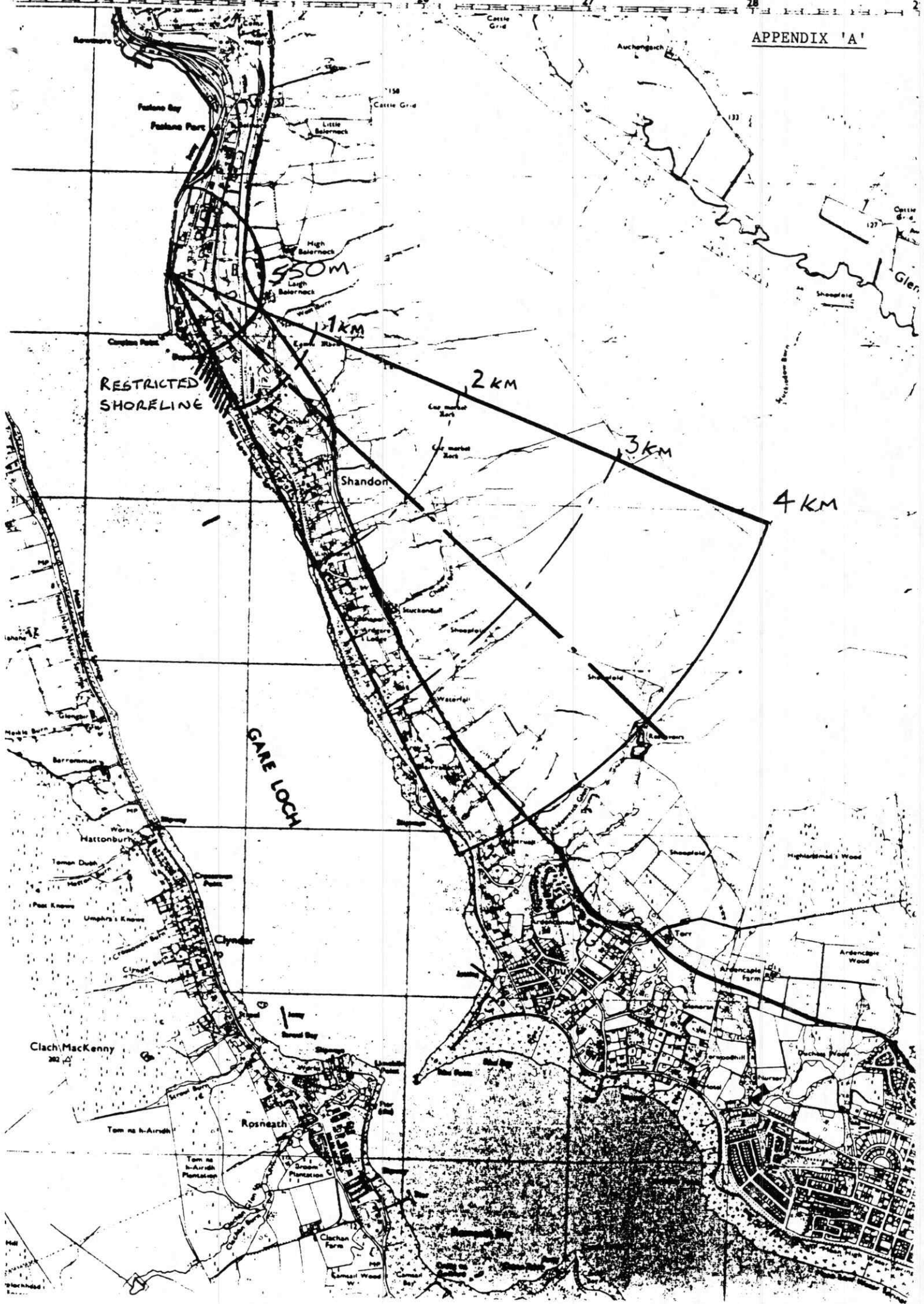
12. Recommendations

12.1. The Committee is asked to note the terms of this report.

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JMcV/Dec'91.





10 The Lennox Herald, November 8, 1991

# HOW SAFE ARE WE?

## Critics slam MoD plans for nuclear emergency

PEACE protesters have launched a fierce attack on the Dumbarton District nuclear emergency exercise which finished last Thursday.

But MoD officials have said that the exercise, Short Sermon '91, was a success.

The two day exercise was held to test the reactions of Dumbarton District and the Clyde Submarine Base to a nuclear emergency at the Faslane base.

The accident scenario was based on a reactor accident in one of the nuclear-powered hunter-killer submarines.

Environmental pressure group Greenpeace described the exercise as "very limited".

They argue that the naval emergency planning HQ at the nearby Rhu Radiation Centre was set up three hours before the "accident" happened and there was little evidence of protective clothing being worn by base personnel.

Greenpeace Nuclear Free Seas Campaigner, Janet Convery, said: "In the real event the emergency planning HQ would take some time to set up. The exercise did not properly test the MoD's ability to respond quickly to a real unforeseen nuclear accident."

"There was an overall lack of urgency and seriousness in the evacuation which took place at the base. And the fact that the public were not involved in the exercise is inexcusable."

Short Sermon was based on the Clyde Area Public

By KAMAL AHMED

Safety Scheme (ClydePubSafe) which contains emergency planning procedures should an accident happen at the base.

At a briefing held by Navy chiefs after the exercise, Commodore Tom Blackburn said: "I'm very pleased to say that early indications are that Exercise Short Sermon demonstrated that the naval and civilian authorities successfully implemented the plan to protect the public."

"I am convinced that the strong working links which were evident during Short Sermon, together with the lessons learned, will prove invaluable in the enhancement of the Clyde Area Public Safety Scheme."

MoD officials argue that accidents worse than the scenario in ClydePubSafe would happen only once every half a million years.

### DIRECTIVES

This is outside the time limit for planning safety procedures contained in government directives.

Commodore Blackburn said: "The object of the exercise was to create a credible test of the Clyde Public Safety Plan."

"I believe that the joint response demonstrated that in the highly unlikely event that we would ever require to do so, naval, local, civil and national authorities would be able to activate and co-ordinate a prompt and effective plan to safeguard the public."

# Domesday scenario for Dumbarton District

SHORT SERMON '91 was planned to test the reactions of Dumbarton District to a simulated nuclear accident at the Clyde Submarine Base. Below we give a blow by blow account of the accident scenario when for two days officials practiced controlling the unthinkable.

## Tuesday, October 29:

2.00 p m: Nuclear staff run for cover as a light aircraft plunges into one of the Faslane-based hunter-killer submarines, HMS Tremor. Five people are killed and eight injured.

Naval officers watch tensely as experts try and judge what damage has been done to the hunter-killer submarine. They discover a rupture in the nuclear engine of the submarine.

2.05 p m: Category 1 accident is announced to base personnel. Non-essential staff are evacuated. Category 1 accident means that there is a threat of radiation being released into the atmosphere and the Gareloch.

2.15 p m: Radiation release confirmed. Radiation has leaked out via a hatch door which was not closed properly and into the Gareloch through a jammed valve. Category 3 accident announced.

"Cascade" emergency phone round begins. Naval Commodore Tom Blackburn calls police headquarters in Glasgow who pass on the message to the local authorities.

Strathclyde Regional Authority emergency planning committee set off for the basement nuclear HQ at the region's Dumbarton headquarters in Garshake Road.

2.30 p m: Potassium iodate tablets are distributed to base personnel to protect against the effects of radiation.

Emergency staff arrive at Garshake Road. Emergency services and council officials headed by Dumbarton District's Chief Executive, Andrew Nisbet, organise emergency procedure for the people of Dumbarton.

The radiation leak has caused contamination up to 1 kilometre from the base. Police set up cordons to keep people out of the area.

The West Highland Line north of Helensburgh is closed.

2.40 p m: Public are warned by loud hailer by base

officials travelling in landrovers. An area of 4 kms, including the village of Shandon, is designated a radiation danger zone. Police control traffic in this area, diverting school children and the public around the area via the A82, Loch Lomond Road.

4.00 p m: Press are told of leak through an emergency release. People in the 4 kms zone are warned through the media to stay inside, close all doors and windows and to cover food.

The crisis release reads: "Do not go outside until you are told that it is safe to do so. Everthing will look quite normal. You will not see, smell or feel anything different."

## Wednesday, October 30:

9.00 a m: Primary schools in the 4 kms zone remain closed. Children are looked after at a school in Helensburgh.

9.20 a m: The damaged submarine begins to sink. Crisis plans are put in place to try and keep the sub afloat.

9.40 a m: Explosive bolts are fired into the hull of the submarine to try and force air into the buoyancy chambers.

10.00 a m: Announcement made that water is safe to drink. Regional chemist, Greg Woodcock, organises samples from the local reservoirs which are all outwith the radiation area. He states that water is not contaminated.

Water helplines are set up which the public can ring with any queries. They will operate round the clock.

11.00 a m: Naval chief, Commander John Channon, at regional HQ tells emergency authorities that a "coffer dam" will be built around the damaged submarine. Construction work begins to encase HMS Tremor in a metal tomb. It will take three days.

1.00 p m: Restrictions are relaxed in the 4 km zone and people are told that they can stop sheltering. Police maintain control in the 1 km zone.

5.00 p m: Controls lifted in the 1 km zone and inside the Clyde Submarine Base.

5.30 p m: Exercise completed.